

**FIRST FIVE-YEAR REVIEW REPORT
FOR
CHEMICAL RECOVERY SYSTEMS SUPERFUND SITE
LORAIN COUNTY, OHIO**



Prepared by

**U.S. Environmental Protection Agency
Region 5
Chicago, IL**

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LIST OF ABBREVIATIONS & ACRONYMS

1,1-DCA	1,1-Dichloroethane
1,2-DCA	1,2-Dichloroethane
1,1-DCE	1,1-Dichloroethene
1,4-D	1,4-Dioxane
ARAR	Applicable or Relevant and Appropriate Requirement
B(a)a	Benzo (a) anthracene
B(a)p	Benzo (a) pyrene
B(b)F	Benzo (b) fluoranthene
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Contaminant of Concern
CRS	Chemical Recovery Systems Superfund Alternative Site
Cis-1,2-DCE	Cis-1,2-Dichloroethylene
D(a,h)a	Dibenzo (a,h) anthracene
EPA	United States Environmental Protection Agency
FYR	Five-Year Review
I(1,2,3-c,d)P	Indeno 1,2,3-c,d pyrene
ICs	Institutional Controls
LTS	Long-term Stewardship
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
MGP	Manufactured Gas Plant
MNA	Monitored Natural Attenuation
NAPL	Non-Aqueous Phase Liquid
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OEPA	Ohio Environmental Protection Agency
ORD	Office of Research and Development
OU	Operable Unit
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PCE	Perchloroethylene
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PRP	Potentially Responsible Party
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SSTL	Site Specific Target Levels

TBC	To be considered
1,1,1-TCA	1,1,1-Trichloroethane
1,1,2-TCA	1,1,2-Trichhloroethane
TCE	Trichloroethylene
TI	Technical Impracticability
UU/UE	Unlimited Use and Unrestricted Exposure
VC	Vinyl Chloride
VISL	Vapor Intrusion Screening Levels

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The United States Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP) (40 CFR Section 300.430(f)(4)(ii)) and considering EPA policy.

This is the first FYR for the Chemical Recovery Systems Superfund Alternative Site (site or CRS). The triggering action for this statutory review is the July 16, 2015 on-site construction start date of the Phase I remedial action at the site. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of a single sitewide operable unit (OU) that will be addressed in this FYR.

The Chemical Recovery Systems Superfund Alternative Site FYR was led by Judy Canova, EPA Remedial Project Manager (RPM). Participants included Susan Netzly-Watkins and Mark Caetta with the Ohio Environmental Protection Agency (OEPA), and Robert Ford with EPA's Office of Research & Development (ORD). The relevant entities such as the Potentially Responsible Parties (PRPs) and OEPA were notified of the initiation of the FYR. The review began on July 12, 2019.

Site Background

The 2.5-acre site is located at 142 Locust Street in Elyria, Lorain County, Ohio (Figure 1, p. 23). The western boundary of the site is the East Branch of the Black River. The area across the Black River from the site includes a mixture of residential and commercial use, whereas the area directly adjacent to the north, south, and east is industrial use. Locust Street forms the eastern site boundary.

The site has had an industrial use since the late 1800s including a manufactured gas plant (MGP), which operated from 1878 until the early 1900s, a coal company in the mid-1900s, and a spent solvent processing facility which began operating in the 1960s and discontinued in the early 1980s. Waste was handled and treated in two manufactured gas holders and two solvent distillation units, also known as still buildings. Containers of waste were stored on site including drums, above-ground storage tanks, and tanker trucks. Several pipes were noted leading from different areas of the site to the Black River, and a sewer line is present on the northern edge of the property. The sewer line also empties into the Black River. In August 1996, OEPA conducted a Site Team Prioritization Investigation and detected contaminants in groundwater, surface water, sediments, soil, and air. In 1997, OEPA used this information to prepare a pre-scoring document ranking the site for the National Priorities List (NPL). Currently, the site is not listed on the NPL but is a Superfund Alternative Site.

Although residential property exists across the Black River from the site, future land use at the site is anticipated to be industrial/commercial. Currently, the property is not in use.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Chemical Recovery Systems		
EPA ID: OHD057001810		
Region: 5	State: OH	City/County: Elyria/Lorain
SITE STATUS		
NPL Status: Non-NPL		
Multiple OUs? No	Has the site achieved construction completion? No	
REVIEW STATUS		
Lead agency: EPA		
Author name: Judy Canova		
Author affiliation: EPA		
Review period: 7/12/2019 - 3/6/2020		
Date of site inspection: 11/19/2019		
Type of review: Statutory		
Review number: 1		
Triggering action date: 7/16/2015		
Due date (five years after triggering action date): 7/16/2020		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

In August 2006, EPA developed a baseline risk assessment for the site using information from the remedial investigation/feasibility study (RI/FS). The future industrial worker was identified as the primary receptor of concern with respect to contamination present at the site. According to the risk assessment, the future industrial worker exposure pathways for groundwater include incidental ingestion, inhalation as a result of vapor intrusion, and incidental dermal contact. The risk assessment indicated future industrial workers, future residents, and the juvenile trespasser may be exposed to contaminants in soil via inhalation, dermal contact, and incidental ingestion. Because of the steep bank of the Black River near the site, human exposure to sediment and surface water was determined not to be of concern. Benzo(a) pyrene (B[a]P) was identified in sediment in the Black River adjacent to the site at concentrations that may represent an unacceptable risk to ecological receptors based on updated toxicological information for benzo(a)pyrene.

A screening level ecological risk assessment included in the 2006 RI/FS compared sediment, soil, and surface water sampling results to ecological benchmarks. The benchmarks were exceeded for ecological receptors for benzo(a)pyrene (B[a]P) in sediment and iron and 1,1,1-trichloroethane (1,1,1-TCA) in outfall samples discharging to the Black River. The ROD set remedial goals for ecological receptors to be equivalent to screening benchmarks, but the ROD stated the future industrial worker remedial goals were used to evaluate remedial alternatives as human receptors were determined to have precedence over ecological receptors.

Contaminants of concern (COCs) for groundwater and soil are included in Table 1.

Response Actions

In July 1983, the Chemical Recovery Systems facility owners entered into a Consent Decree (CD) C-80-1858 pursuant to the Clean Water Act and the Resource Conservation and Recovery Act to excavate all visibly contaminated soil and soil near the perimeter of one still building at the site and to dispose of the contaminated material at an EPA-approved disposal facility. The excavated areas were to be backfilled with clean material and the site was to be graded appropriately. This was completed, and on September 15, 1983, EPA concluded that the defendant completed the requirements of the CD.

A Record of Decision (ROD) was signed in October 2007. The ROD set forth the following Remedial Action Objectives (RAOs):

- To prevent exposure to all COCs in soil and sediment that exceed EPA's acceptable risk range for human and ecological receptors;
- To minimize or eliminate contaminant migration to groundwater and surface water; and
- To restore groundwater to drinking water standards established under the Safe Drinking Water Act within a reasonable time frame.

The ROD selected a remedial alternative that included the following remedy components:

- Excavation of the top four feet of highly contaminated soil and off-site disposal of approximately 3,500 cubic yards of contaminated soil from the northwest corner of the site;
- Surficial sampling verification (up to 6 inches), to document the level of and type of contaminants left in place. No additional soil removal is required;
- Backfill excavated area with clean fill material;
- Application of a marker prior to backfilling, such as orange polyethylene netting, to delineate contaminated soils are underneath;
- Closure of two on-site sump pumps;
- Demolition of two on-site structures;
- Repair of sewer line;
- Placement of 2 feet of clean soil over the 2.5-acre site, compact and appropriately grade for erosion control;
- Monitored Natural Attenuation (MNA) of groundwater to assure groundwater restoration to drinking water standards are achieved for all COCs;
- Institutional Controls (ICs);

- Perimeter Fencing; and
- 30 years of Operation and Maintenance (O&M) to assure all RAOs continue to be maintained.

If MNA sampling indicated the time required to meet MCLs was not reasonable, the ROD included a contingency for a combination of active groundwater remediation or other innovative measures to prevent migration of the plume if the time frame to achieve remedial goals for groundwater was determined to be excessive based on quarterly monitoring. The ROD also suggested a Technical Impracticability Waiver could be considered if EPA determines the implemented active or innovative groundwater remediation strategies are not able to achieve clean-up goals in a reasonable time period.

Table 1 below provides the clean-up levels included in the 2007 ROD for site groundwater and soil COCs. Clean-up levels for soil are presented in the ROD as Site-Specific Target levels (SSTL).

Table 1: Chemical Recovery Systems Site COCs and Remedial Clean-up Levels in ROD

Media/Exposure Pathway	Contaminant of Concern	SSTL milligrams per kilogram (mg/kg) for soil; milligrams per liter (mg/l) for groundwater
Soil/Future Industrial Worker ingestion, inhalation, and dermal contact (outdoor)	1,2-Dichloroethane (1,2-DCA)	0.27
	Benzene	2.0
	Chloroform	0.11
	PCE	23
	TCE	140
	VC	0.44
	Xylene	540
	Benzo(a)anthracene (B[a]a)	2.2
	Benzo(a)pyrene (B[a]p)	2.5
	Benzo(b)fluoranthene (B[b]f)	2.9
	Dibenzo(a,h)anthracene (D[a,h]a)	2.3
	Indeno 1,2,3-c,d pyrene (I[1,2,3-c,d]P)	2.1
	Aroclor 1242 (PCB)	2.3
	Aroclor 1248 (PCB)	0.38
	Aroclor 1254 (PCB)	2
	Aroclor 1260 (PCB)	0.25
	Arsenic	2.9
Soil/Future Industrial Worker soil criteria for vapor intrusion/inhalation	1,1,1-Trichloroethane (1,1,1-TCA)	0.23
	1,1,2-Trichloroethane (1,1,2-TCA)	0.0016
	1,1-Dichloroethane (1,1-DCA)	0.21
	1,1-Dichloroethene (1,1-DCE)	0.0041
	1,2-DCA	0.0042
	Benzene	0.64
	Chloroethane	0.00048
	Chloroform	0.0016
	cis-1,2-DCE	0.58
	Dibromochloromethane	0.00084
	Ethylbenzene	78
	Methylene Chloride	0.067

	PCE Toluene trans-1,2 DCE trans-1,3-dichloropropane TCE VC Xylene Naphthalene	0.31 18 0.073 0.0065 1.7 0.007 9.4 19
Groundwater/Inhalation	Benzene cis-1,2 DCE Methylene Chloride Trichloroethene Naphthalene	0.02 0.27 0.13 0.075 3.9
Groundwater/Ingestion	Benzene Carbon Tetrachloride 1,2-DCA 1,1-DCE Cis-1,2-DCE Trans 1,2-DCE Ethylbenzene Styrene Toluene 1,1,1-TCA 1,1,2-TCA PCE TCE VC Xylene B[a]P 1,1-Dichloroethane 4-Methyl-2-Pentanone B(a)A B(b)F Naphthalene	MCL (ug/l) 5 5 5 7 70 100 700 100 1000 200 5 5 5 2 10000 2 Regional Screening Level Tapwater (ug/l) 2.4 1000 0.029 0.029 0.14

The ROD did not specify individual clean-up levels for COCs in groundwater but simply stated MCLs would apply when available. The ROD did not set clean-up levels for soil gas. Instead, clean-up levels for soil and groundwater were included in the ROD to be protective of the inhalation route for human receptors.

Status of Implementation

A CD between EPA and the PRP group for implementation of the remedial design and remedial action (RD/RA) in accordance with the ROD was signed in May 2010. The approach for remedial action was divided into three phases, and this approach was approved by EPA in April 2015.

The Phase I RA Work Plan was approved on September 11, 2015 and included asbestos abatement and universal waste removal, sampling, and disposal of investigation-derived waste from previous work at the site, demolition of buildings and structures, erosion controls, pipe and sump plugging/abandonment, and placement of fencing. The Phase I plan included evaluation of the sewer line and indicated the sewer line would be repaired or replaced during Phase II. Soil backfill is proposed as Phase III. The Phase I plan was implemented beginning in September 2015 and completed in January 2016 including placement of 200' of fencing closing gaps created by building demolition. The final inspection of this work occurred in May 2016. The Phase I Remedial Action Completion Report was provided to EPA in July 2016. Page 2-8 of the July 2016 Remedial Action Completion Report indicates that the upper end of the sewer line was plugged. The City of Elyria indicates the sewer line is connected to three stormwater catch basins on Locust Street adjacent to the site. Water continues to discharge to the Black River from the sewer line. An initial evaluation of indicator parameters in the Black River at the sewer discharge point performed in October 2019 suggests contaminated groundwater from the site may discharge into and along the sewer line. Plans are underway for additional sampling of the sewer discharge.

After the ROD was signed in 2007, the PRPs performed additional sampling at the site in September 2010 and identified non-aqueous phase liquid (NAPL) in the subsurface fractured rock and groundwater (Brown and Caldwell, 2012). MGP features were identified at the site at this time including two gas holders that were placed into excavated fractured rock. The PRP group requested a technical impracticability (TI) waiver of groundwater applicable or relevant and appropriate requirements (ARARs) for the site in 2013. The PRP group has conducted a number of investigations to evaluate the viability of this approach which culminated in the 2017 Technical Impracticability Assessment Report (EHS, 2017). In 2019, bedrock wells were installed across the Black River to determine if contaminated groundwater is present in the area in accordance with the EPA-approved June 2019 work plan. At this time, EPA has not approved a TI waiver for the site.

No additional RA activities at the site have occurred since the Phase I activities were completed. The proposed removal of the upper four feet of contaminated soil from the northwest portion of the site (Phase II) has not occurred yet, and the soil in this area continues to represent a potential risk to ecological and human receptors although deed restrictions are in place and the 2019 Site Inspection did not identify any evidence of trespassing. Phase III, backfill with clean soil, has not been implemented yet at the site.

Institutional Controls

In general, ICs are non-engineered instruments, such as administrative and/or legal controls that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for those areas that do not allow for UU/UE.

Status of Access Restrictions and ICs

In accordance with the May 4, 2010, CD and the July 6, 2010, IC Workplan approved on September 21, 2010, Dorothy K. Obitts, property owner, filed an “Environmental Covenant” and a “Notice to Successors in Title” including surveyed descriptions of the property, with the Recorder of Lorain County, Ohio. The filed covenant provides that the future use of the site shall not compromise the integrity or protectiveness of the RA unless EPA provides consent. The covenant states the goal for site remediation will be commercial or industrial use, but no potable or non-potable use of groundwater at the site shall occur without EPA’s consent. This covenant will run with the land until EPA determines it is no longer required to protect human health and the environment. Table 2 below summarizes the ICs currently in place at the site.

Table 2: Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Chemical Recovery Systems site soil and groundwater	Yes	Yes	Tax ID# 06-26-096-000-002; 06-26-096-000-003 06-26-096-000-004; 06-26-096-000-005; 06-26-096-000-023; 06-26-096-000-024; 06-26-096-000-008	Restrictions on future use of the site to maintain the integrity and performance of the remedy. The restrictions prohibit land use incompatible with the remedy such as excavation, grading, filling, drilling, or other construction or development and groundwater extraction. The IC restricts groundwater use at the site including well installation.	Environmental Covenant DOC ID #015970170019 was lodged, and a Deed Notice was recorded in the Lorain County Recorder of Deeds on July 20, 2010

A map showing the area in which the ICs apply is included in Appendix B.

As the remaining phases of remedial action have not occurred at the site, additional elements of the July 6, 2010, IC Workplan have not been implemented yet, including installation of property boundary markers or rechecking the status of the deed restriction regarding site use. To date, EPA has not received annual reports from the property owner regarding ICs at the site which is a required component of the IC Workplan.

Current Compliance: During the November 19, 2019, site visit, there were no signs of trespassers or unauthorized site entry. The site remains vacant and has not been used although the current property owner is interested in redeveloping the property as a parking lot or long-term warehouse facility. EPA will work with the property owner to ensure that any future redevelopment is compatible with the integrity of the remedy and the objectives for the ICs in place.

Long-Term Stewardship (LTS): Since compliance with ICs is necessary to assure the protectiveness of the remedy, planning for LTS is required to ensure that the ICs are maintained, monitored, and enforced so that the remedy continues to function as intended. A LTS plan should include procedures to ensure LTS such as regular inspection of the engineering controls and access controls at the site and review of the ICs at the site. It should also include a requirement for an annual certification by the PRP group to EPA to provide results of site inspections, report any potential land and/or groundwater uses that may be inconsistent with the ICs, and certify that ICs remain in place and continue to be effective. Finally, development of a communications plan to provide routine remedy updates and use of the State's "one-call" system to receive notifications of dig sites in the vicinity of the remedial system/components should be explored.

IC Follow-up Actions Needed: Boundary markers and functional fencing across the entire site discussed in the July 6, 2010 IC Workplan are needed. In 2016 after building removal during Phase I, fencing was placed to cover the gap in the existing fencing created by building removal, but the plans include installation of new fencing surrounding the entire site. As site remediation has not been completed, installation of markers and fencing will be delayed. However, appropriate signs should be placed on the existing fence, and repairs of the existing fence including shoring should be proposed and implemented. A revision to the IC plan is recommended so that the PRP group will be responsible to evaluate and report on the effectiveness of the ICs at the site until remediation is completed and a long-term stewardship (LTS) plan has been approved for the site. Finally, a LTS plan should be developed and implemented.

Systems Operations/Operation & Maintenance:

The PRP group began quarterly groundwater monitoring to assess trends in July 2019 in accordance with the approved July 11, 2019, Groundwater Monitoring Plan. Quarterly groundwater monitoring results will be used to inform decisions regarding the next steps that will be appropriate for the site. MNA is not currently being evaluated as the ROD required removal activities prior to initiation of MNA evaluation. When the remedy construction is complete, the PRP group will develop an Operation and Maintenance plan for the site.

III. PROGRESS SINCE THE LAST REVIEW

This is the first FYR for the site.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available by a newspaper posting in the *Elyria Chronicle-Telegram* on Sunday, January 26, 2020 entitled "EPA Begins Review of Chemical Recovery Superfund Site Elyria, Ohio" stating that there was a FYR and inviting the public to submit any comments to EPA (Appendix C). The results of the review and the report will be made available at the site information repository located at the Elyria Central Public Library, 320 Washington Ave., Elyria, OH and electronically at www.epa.gov/superfund/chemical-recovery. No written comments were received.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. The results of these interviews are summarized below:

EPA met at 11:00 am on November 19, 2019 with the City of Elyria to discuss their plans for redevelopment of the area specifically pertaining to the sewer line on the site property and to discuss any questions they had regarding the site or plans for the site. City representatives included Holly Brinda, Mayor, John Schneider, City Engineer, Kathryn McKillips, Assistant City Engineer, and Terry Korzan, Wastewater Superintendent.

Elyria's plans for the area are focused on upgrading the East Avenue area and do not include Locust Street at the site. There is a lift station used by BASF (adjacent to the site) for discharge of industrial and sewage water which connects to a 10" line on Locust Street. Wastewater flows to a lift station on Locust Street and is pumped through a force-main under the Black River to a manhole near the intersection of Harrison and Glenwood Street. The storm sewer on the site property is connected to 2 or 3 catch basins along Locust Street. The city has discussed ways to divert stormwater around the site property, but they do not view this as financially viable for the city. The storm sewer cannot be lined because of its position and condition. The city's comments will be considered during future remediation activities and will inform plans pertaining to the sewer line.

At 12:00 noon on November 19, EPA conducted two telephone interviews with the current property owners including Doug and Don Dubena, sons of Dorothy Obitts. Their concern was the timing of remediation completion and future acceptable uses of the property. They indicated an interest in using the property for a parking lot or an area of individual storage units for rent.

Data Review

Groundwater:

The PRP group began quarterly groundwater monitoring of site wells in July 2019 in accordance with the approved July 11, 2019 Groundwater Monitoring Plan. Sampling conducted in 2019 confirmed the presence of NAPL at the site. Plume maps were also constructed for the upper bedrock aquifer showing the changes in distribution of selected contaminants over the sampling period. Tables and figures summarizing groundwater quality data are included in Appendix D. In general, not enough water quality data is available to define statistical trends or provide estimates of time required to meet remedial goals. Currently only three to five monitoring events covering a period of 16 years are available. The lack of consistent monitoring reduces certainty regarding water quality trends. However, continued detections of part per million levels of contaminants in the bedrock aquifers, along with what could be construed as increasing concentrations of selected contaminants, suggests remedial goals may not be met in a reasonable time frame using MNA unless additional actions are taken including 1) the proposed soil removal included in the ROD and 2) steps beyond those covered by the ROD to address the MGP waste. The plume migrates horizontally towards the Black River and vertically towards deeper portions of the bedrock aquifer based on available isoconcentration maps for different sampling events (See Appendix D).

It is unclear whether MNA will achieve the desired cleanup goals in a reasonable time period given the current data. No remedial actions have been implemented yet that could significantly affect attenuation rates. Although biodegradation of selected compounds may be occurring, the plume is moving horizontally towards the Black River and vertically from the Upper Bedrock Aquifer to the Lower Bedrock Aquifer. Qualitative analysis of water quality trends in individual wells is discussed below.

Bedrock Wells Across the Black River

To evaluate whether contaminated groundwater from the site is flowing under the Black River, three bedrock wells were installed across the Black River. The wells were screened at depths immediately below the base of the river in either sandstone or shale. All wells produced sufficient water for sampling. The wells were sampled in November 2019, and it appears that the groundwater samples may have been affected by inadequate cleaning of sampling equipment as contaminants were detected in the associated equipment blank samples. The bedrock wells across the Black River from the site will be sampled as part of the routine quarterly monitoring event scheduled for the second quarter of 2020. After additional data are received, EPA will resume the evaluation of potential migration of contamination beneath the Black River.

EPA will review the report generated from four quarters of groundwater quality data from wells on the CRS property and two quarters of data from sampling of bedrock wells across the site to determine the frequency of future groundwater sampling. This report is due in July 2020.

Soil Gas:

In 2019, the PRP sampled and identified PCE and TCE in soil gas above screening levels set by OEPA for subslab soil gas. Soil gas sampling at seven locations at the site occurred on September 23 and 24, 2019. Appendix E includes tabulated results for soil gas sampling in addition to a map showing the soil gas sampling locations. PCE and TCE were detected above OEPA 2016 action levels specified in the 2019 Quality Assurance Project Plan (QAPP) approved by EPA in July 2019. Two locations exceeded soil gas action levels for subslab soil gas samples. No buildings are present at the site, but the soil gas could represent a potential exposure risk in the future should buildings be constructed on the site without remediation of soil and groundwater. Additional soil gas sampling to confirm the extent of contamination in soil gas is scheduled for the second quarter of 2020, and a report of findings is anticipated in the third quarter of 2020.

Site Inspection

The inspection of the site was conducted on 11/19/2019. In attendance were Judy Canova, (EPA RPM, Region 5) Susan Netzly-Watkins and Mark Caetta (OEPA), Robert Ford (EPA – ORD), Pat Steerman, Emily Gloeckler, Jennifer Tharp, and Larry Mencin (PRP Representatives), and Joe Warburten and Max Moroney (Brown and Caldwell, PRP Contractor). The purpose of the inspection was to assess the protectiveness of the remedy. The three primary components of the FYR site inspection included 1) observing the progress of remedial action at the site, 2) checking the fence for stability, continuity, and signage, and 3) observing the current condition of existing monitoring wells at the site. A summary of the inspection and photographs are included in Appendix F.

The portion of the remedial action that has been completed at the site thus far includes building demolition and filling of one sump with concrete. Soil to be removed per the ROD remains at the site including contaminated surface soil with concentrations of contaminants above the cleanup levels for soil. Debris is currently present at the site that could present a trip hazard in the area where contaminated surface soil is present. The plugging and filling of the sewer line has not occurred. Soil sampling indicates the sewer line and soil in the immediate vicinity of the line may need to be removed to eliminate a continuing source of contaminant release to the Black River. Additional evaluation of the sewer line performed in 2019 and 2020 suggests groundwater is discharging through the cracks, holes, and joints in the sewer line and the area surrounding the sewer with a preferential flow path along the sewer to the river. The sewer line and surrounding fill provides an enhanced contaminant migration

pathway to the Black River. Plugging of the sewer line alone will not address the preferential migration pathway along the outside of the sewer.

Site fencing is present on three sides of the property but is not present between the property boundary and the Black River. Where the fence is present, it does not have warning signs or no-trespassing signs to discourage site entry. The integrity of the fence is questionable in places where the fence is leaning. There is one area where the fencing is ingrown into a stump which would facilitate crossing the fence into the property by a trespasser. The PRPs indicate the fence has not been replaced as the plan was to replace it after soil removal was completed. To date, no signs of trespassing on the property have been noted.

Quarterly groundwater monitoring began at the site in the summer of 2019 in order to assess current water quality trends. It was observed that the following wells did not have a plug or seal set into the inner casing: MW-1, MW-6RA, MW-6RB, MW-6RC, MW-8D, MW-11A, MW-11B, MW-11C, and MW-14. Absence of a plug in the well renders a question regarding well integrity and sample representativeness. The following wells had suitable outer casing and a seal on the inner casing: MW-5, MW-6, MW-7A, MW-7D, MW-10A, MW-10B, MW-10C, MW-15A, MW-15B, and MW-16. A copy of the Site Inspection Report is included in Appendix F.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents? **No.**

Question A Summary:

Phase I remedial activities including building demolition, pipe removal, and filling sumps was completed in July 2016. However, Phase II (soil removal) and Phase III (backfill) have not been performed yet. Therefore, a limited portion of the remedy in the ROD is functioning as intended. Although site preparation for remediation has been implemented, the RAOs of the ROD pertaining to protection of human health and the environment have not yet been achieved.

Remedial Action Performance

- Quarterly groundwater quality monitoring was started in 2019 and the data thus far suggests the plume is moving towards the Black River. Currently available data are inconclusive regarding whether contaminated groundwater has gone beneath the Black River via fractured rock. Groundwater samples from the wells across the river contained site-related contamination, but site-related contamination was also found in the associated equipment blanks. It is uncertain if contamination is present in the bedrock wells across the river. Additional sampling of the bedrock wells across the river from the CRS property is planned for 2020 to confirm if the presence of contamination in the groundwater samples collected in 2019 was a result of contaminated equipment or if contamination has underpassed the river. There are no known groundwater wells in the deep bedrock across the Black River in the potentially affected areas. Based on currently available information, there is no current risk of human exposure to contamination in deep bedrock across the Black River as no bedrock wells have been identified in the area. If contamination is confirmed in the bedrock wells across the Black River, delineation of the affected area and identification of any potential receptors will be required. These newly installed bedrock wells will need to be added to the monitoring plan for 2021.

- Soil continues to release contamination to groundwater as no soil remediation has occurred. This will be addressed with the implementation of Phases II and III of the RA.
- Evaluation of the sewer line suggests it is intercepting groundwater from the site, and soil under the sewer line may be a continuing source of groundwater contamination. Additional data will be collected to make a determination to what extent this is occurring by 12/31/2021.

System Operations/O&M

No O&M has occurred at the site to date other than quarterly groundwater monitoring. A plan to maintain well integrity, check for trespassers, and upgrade/maintain the fencing and signage is needed. Therefore, plans are underway to have an O&M plan implemented for the site by July 2022.

Implementation of Institutional Controls and Other Measures

- Access controls including fencing and signage are inadequate to prevent potential trespasser exposure to contamination in surface soil at the site. The fence should be repaired, and warning signs installed. While the 11/19/2019 site inspection noted the need for such repairs, evidence of trespassing was not observed. Plans are underway to address these fencing and signage issues by July 2021.
- Effective ICs in the form of deed restrictions are in place to prevent exposure to contaminants in groundwater and subsurface soil.
- An update to IC workplan is needed to indicate the PRP group will be responsible for annual reporting regarding ICs as the current property owner is not capable of developing this type of report. This update should be prepared by 7/2021.
- Development and implementation of a Long-term Stewardship Plan is needed and is expected to be developed by December 2023 to help ensure the long-term protectiveness of the remedy.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid? **No.**

Question B Summary:

Emerging contaminants are of potential concern at the site including 1,4-D and Per- and Polyfluoroalkyl Substances (PFAS) and Perfluorooctanoic Acid (PFOA). 1,4-D has been detected in groundwater at the site. Remedial goals will need to be established for 1,4-D in a decision document for the site. The target date for a new decision document has not been determined as the date is dependent on other findings at the site pertaining to the MGP. Surface water should be sampled for 1,4-D to determine if groundwater with 1,4-D is discharging into the Black River. Because of the history of site use as a solvent handler from a variety of sources where PFOA and PFOS may have been used, groundwater sampling for PFOA/PFOS is needed. Plans to sample for PFOA/PFOS will be developed by July 2021. If PFOA/PFOS are detected in groundwater, surface water should also be sampled for these compounds. Remedial goals may be needed for PFOA/PFOS compounds in soil, groundwater, sediment, and surface water. The need for remedial goals will be evaluated once the presence or absence of these compounds is determined.

The PRP group submitted an updated Ecological Risk Assessment (ERA) as part of the TI Waiver Application after the MGP was identified. A review of this document concluded that the ecological risk

assessment and associated remedial goals should be updated in accordance with new approaches published by OEPA (2018) and EPA Region 5 (2010, 2017). Impacts of contaminated groundwater discharge to surface water through sediment including porewater quality should be evaluated. A plan is being developed for the performance of this work. Implementation of the plan is anticipated in July 2021.

Soil gas sampling has revealed areas that exceed screening levels for vapor intrusion. The delineation of these areas is ongoing. There is currently no completed exposure pathway for soil gas as no buildings are present at the site. Additional soil gas sampling to confirm the extent of contamination in soil gas is scheduled for the second quarter of 2020, and a report of findings is anticipated in the third quarter of 2020. Ohio EPA developed new Vapor Intrusion Screening Levels (VISL) in 2016. VISLs used in the soil gas assessment should be consistent with those currently in place to ensure the site is protective for future industrial or commercial use. Prior to future construction of buildings on-site, the potential for VI above levels of concern will need to be reevaluated based on remedial activities and the nature of the building proposed for construction.

After issuance of the 2007 ROD, in 2010 the PRPs identified a MGP at the site, including two gas holders that were placed into excavated fractured rock and identified NAPL in the subsurface fractured rock and groundwater (Brown and Caldwell, 2012). The MGP gas holders that were discovered in 2010 will need to be evaluated during the supplemental RI/FS and addressed as part of the site remedy. Plans are being developed for evaluation of the MGP gas holders. The goal is to have the initial evaluation completed by December 31, 2021.

Changes in Standards and TBCs

- EPA issued interim recommendations for PFOA/PFOS contaminated groundwater that is or may be a source for drinking water in a memorandum dated December 19, 2019. EPA recommends a screening level of 40 ppt and a health advisory level of 70 ppt for a preliminary remediation goal.
- Procedures for Addressing Potential 1,4-Dioxane at Region 5 Superfund Sites were presented in a December 12, 2019 Region 5 memorandum. The tap-water regional screening level for 1,4-D is 0.46 ug/l.
- Remediation goals for soil to protect groundwater quality may need to be evaluated for 1,4-D and PFOA/PFOS if detected. These compounds have not been evaluated in soil to determine the locations of release to groundwater, and SSTLs were not developed for these constituents in soil.

Changes in Risk Assessment Methods

- In accordance with Region 5 practice (EPA, 2017), EPA Region 4 Ecological Risk Assessment Supplemental Guidance should be used to select Ecological Screening Levels.
- OEPA (2018) has updated guidance for evaluating ecological risk that needs to be considered.
- VISLs should be modified to match OEPA's current VISLs.

Changes in Exposure Pathways

- The potential locations of contaminated groundwater discharge to surface water were not defined or sampled during the RI/FS. Methods to identify discharges from groundwater to surface water have recently been developed and refined, and the understanding of the importance of this delineation has improved substantially since the 2007 ROD. If locations of groundwater

discharge to surface water are identified, they should be sampled to determine the exposure risk to aquatic organisms and to confirm the remedy protectiveness. This potential exposure pathway was identified during a review of site information in 2018, and EPA has been working with the PRP group to determine where the discharges may be occurring.

- Should areas of contaminated groundwater discharge to surface water be confirmed, and sediment pore water should be evaluated to determine the risk to benthic organisms to confirm the site conditions remain protective of benthic organisms.
- Emerging contaminants at the site may include PFAS/PFOA and does include 1,4-D. Groundwater contains 1,4-D and a remedial goal needs to be determined for this compound. Sampling for PFOA/PFAS will be needed at the site to confirm releases are not occurring to groundwater and the Black River that would cause an unacceptable risk to ecological receptors.

Expected Progress Towards Meeting RAOs

- Although biodegradation of selected compounds is causing decreasing contaminant concentrations of selected compounds as expected, daughter products are increasing, and the plume is moving towards the Black River. The potential risk to the River is under evaluation based on the updated paradigm of groundwater-surface water interactions.
- It is currently unknown if contamination has passed in the Deeper Bedrock Aquifer beneath the River onto adjacent properties that may not have ICs to prevent exposure to contaminants in groundwater. Additional sampling is planned for this area to confirm current conditions.
- Because the Upper Aquifer across the River has been sampled and no contaminants have been identified, there is no concern for vapor intrusion across the River. The determination of the presence of contaminants across the River in the Deeper Bedrock Aquifer is ongoing but does not affect the potential for vapor intrusion.
- Trends of 1,4-D in groundwater need to be determined, and surface water will need to be sampled for this compound. The presence of PFOA/PFAS will need to be evaluated. RAOs for these compounds to protect human health and the environment will need to be evaluated.
- Although a MGP was discovered after the ROD was signed, the ROD includes remedial goals for contaminants in soil and groundwater associated with polynuclear aromatic hydrocarbons (PAHs) that were identified at the site during the RI/FS. However, the gas holders and NAPL were not specifically addressed in the ROD and may need to be considered with respect to future remedial actions at the site.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy? **No.**

No impacts from natural disasters or climate change have been identified.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations	
OU(s) without Issues/Recommendations Identified in the Five-Year Review:	
None	

OU(s): 1	Issue Category: Institutional Controls			
	Issue: Lack of Long-Term Stewardship procedures.			
	Recommendation: Develop and implement a Long-Term Stewardship Plan.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	12/31/2023

OU(s): 1	Issue Category: Institutional Controls			
	Issue: Property owner is not providing annual reports in accordance with the IC Workplan.			
	Recommendation: The PRP group should revise the IC workplan to indicate the PRP group will provide an annual report based on observations during routine sampling events to confirm no changes to property use.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	7/1/2021

OU(s): 1	Issue Category: Site Access/Security			
	Issue: No warning and/or notification signs on fencing at the site. Fencing is unstable and appears easy to circumvent.			
	Recommendation: Place a warning sign with a contact and phone number that advises the property is not to be entered due to the presence of contamination at the site. Shore up existing fencing until new fence is installed after construction.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	7/31/2021

OU(s): 1	Issue Category: Operations and Maintenance			
	Issue: No O&M plan in place for maintaining site security, access controls, and upkeep of the site			
	Recommendation: An O&M plan should be developed and implemented to maintain the site until the remedy is implemented, and updated after the remedy is implemented.			

Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	7/31/2022

OU(s): 1	Issue Category: Monitoring			
	Issue: Potential impacts to Black River from groundwater discharge.			
	Recommendation: Identify where groundwater discharges are occurring and collect samples of surface water, sediment, and pore water for analysis. Update ecological risk assessment as needed based on newly collected data.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	12/31/2021

OU(s): 1	Issue Category: Monitoring			
	Issue: PFOA/PFAS may be present at the site.			
	Recommendation: Sample groundwater, soil, and surface water in selected locations for PFOA/PFAS			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	6/30/2021

OU(s): 1	Issue Category: Monitoring			
	Issue: 1,4-Dioxane has been detected in groundwater.			
	Recommendation: Surface water should be sampled at select locations for 1,4-D to determine if groundwater with 1,4-D is discharging into the Black River. Develop remedial goals for 1,4-D for groundwater and surface water if 1,4-D is detected.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	12/31/2021

OU(s): 1	Issue Category: Monitoring			
	Issue: Groundwater contamination may have migrated underneath and across the Black River.			
	Recommendation: Groundwater sampling and analysis of deeper bedrock wells across the Black River to confirm presence/absence of COCs from the site.			

Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	12/31/2020

OU(s): 1	Issue Category: Monitoring			
	Issue: Monitoring well integrity may be compromised at: MW-1, MW-6RA, MW-6RB, MW-6RC, MW-8D, MW-11A, MW-11B, MW-11C, and MW-14.			
	Recommendation: Assess well integrity and upgrade well conditions for wells that remain useable. For wells with compromised integrity, replace the monitoring well.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	12/31/2020

OU(s): 1	Issue Category: Monitoring			
	Issue: Initial soil gas sampling results indicate a potential for a vapor intrusion issue.			
	Recommendation: Complete soil gas sampling at the site and compare with Ohio's updated VISLs to determine the areas where vapor intrusion may be a concern for future use.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	12/31/2020

OU(s): 1	Issue Category: Monitoring			
	Issue: Trends of contaminant concentrations in groundwater are not defined.			
	Recommendation: Continue monitoring until sufficient data is collected to evaluate effectiveness of MNA remedy.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	3/31/2021

OU(s): 1	Issue Category: Monitoring			
	Issue: Bedrock wells across the Black River are not in the 2019 Groundwater Monitoring Plan.			
	Recommendation: Incorporate new bedrock wells into monitoring schedule in the plan.			

Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	12/31/2020

OU(s): 1	Issue Category: Changed Site Conditions			
	Issue: MGP found at site			
	Recommendation: Complete supplemental RI and FS of nature and extent of impacts of MGP. Update ecological risk evaluation to include current thresholds for contaminants that may be identified in sediment, pore water, and surface water.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	12/31/2021

OU(s): 1	Issue Category: Remedy Performance			
	Issue: Sewer line may be source of contamination.			
	Recommendation: Complete investigation of nature and extent of impacts pertaining to the potential sewer line source area.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	12/31/2021

OU(s): 1	Issue Category: Other			
	Issue: MGP, 1,4-D, and Sewer Line not included in ROD			
	Recommendation: Based on additional information collected at the site, determine whether the current remedy should be implemented and assess the need to update, amend or develop a new decision document for the site.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA/State	12/31/2022

VII. PROTECTIVENESS STATEMENT

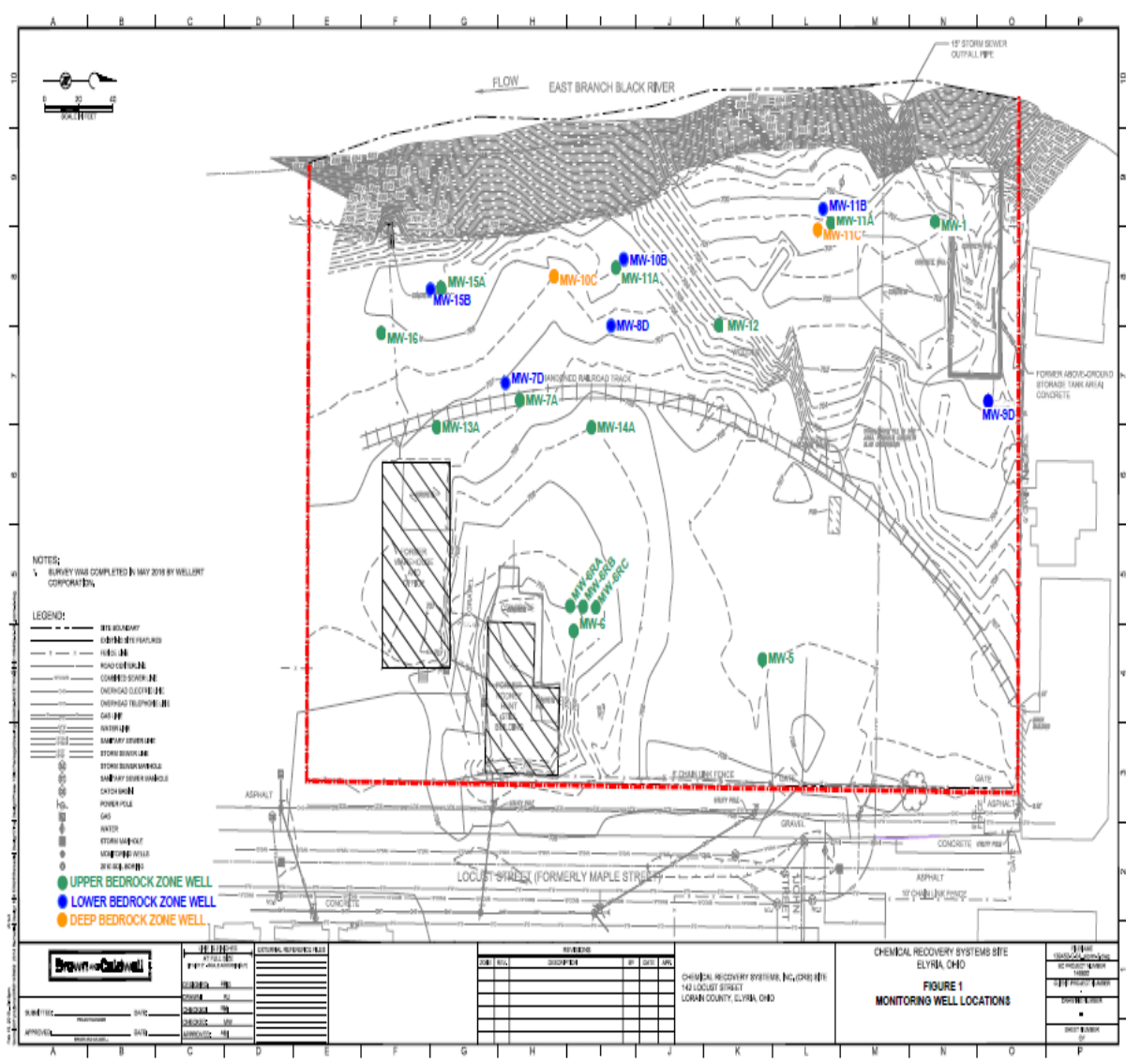
Protectiveness Statement(s)		
Operable Unit: 1	Protectiveness Determination: Protectiveness Deferred	Planned Addendum Completion Date: 5/31/2023
Protectiveness Statement:		

A protectiveness determination of the remedy at the Chemical Recovery Systems site cannot be made at this time until further information is obtained. Further information will be obtained by taking the following actions: 1) Complete supplemental RI and FS of nature and extent of impacts of MGP, 2) Update ecological risk evaluation to include current thresholds for contaminants that may be identified in sediment, pore water, and surface water, 3) Complete investigation of nature and extent of impacts pertaining to the potential sewer line source area, 4) Continue evaluating water quality in bedrock wells across the Black River, and 5) Based on additional information collected at the site, determine whether the current remedy should be implemented and assess the need to update, amend, or develop a new decision document for the site. It is expected that these actions will take approximately three years to complete, at which time a protectiveness determination will be made.

VIII. NEXT REVIEW

The next FYR report for the Chemical Recovery Systems Superfund Alternative site is required five years from the completion date of this review.

Figure 1



APPENDIX A – REFERENCE LIST

Brown and Caldwell. 2012. Additional Groundwater Studies (AGWS) Report Chemical Recovery Systems, Inc (CRS) Site. December 2012. SEMS 448887

Brown and Caldwell. 2015. Phase I Remedial Action Workplan. August 2015. SEMS 519835

Brown and Caldwell. 2016. Completion Report for the Phase 1 Remedial Action. July 2016. SEMS 930925

Brown and Caldwell, 2019. Work Plan for On-Site Soil Gas and Off-Site Groundwater Monitoring West of the River. June, 2019. SEMS 947934

Brown and Caldwell. 2019. Baseline/Q1 Data Report for On-Site Groundwater Monitoring Chemical Recovery Systems, Inc (CRS) Site. November 2019. SEMS 952742

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Ohio EPA. 2016. Guidance Document Recommendations Regarding Response Action Levels and Timeframes for Common Contaminants of Concern at Vapor Intrusion Sites in Ohio. August 2016. <https://epa.ohio.gov/portals/30/Response%20Action%20Levels%20for%20VOC%20Final08.24.2016.pdf>

Ohio EPA. 2018. Guidance for Conducting Ecological Risk Assessments. Division of Environmental Response and Revitalization. February 2003, Revised April 2008, and July 2018. <https://www.epa.ohio.gov/portals/30/rules/RR-031.pdf>

S.S. Papadopoulos & Associates, Inc (SSPA). 2019. Review of Technical Impracticability Assessment Report. October, 2019. SEMS 952740

U.S. Environmental Protection Agency (EPA). 2003. Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks for the Protection of Benthic Organisms: PAH Mixtures. Office of Research and Development. EPA-600-R-02-013. November.

https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NHEERL&dirEntryId=84357

EPA. 2010. Explanation of PAH benchmark calculations using EPA PAH ESB approach. June 23. <https://archive.epa.gov/emergency/bpspill/web/pdf/explanation-of-pah-benchmark-calculations-20100622.pdf>

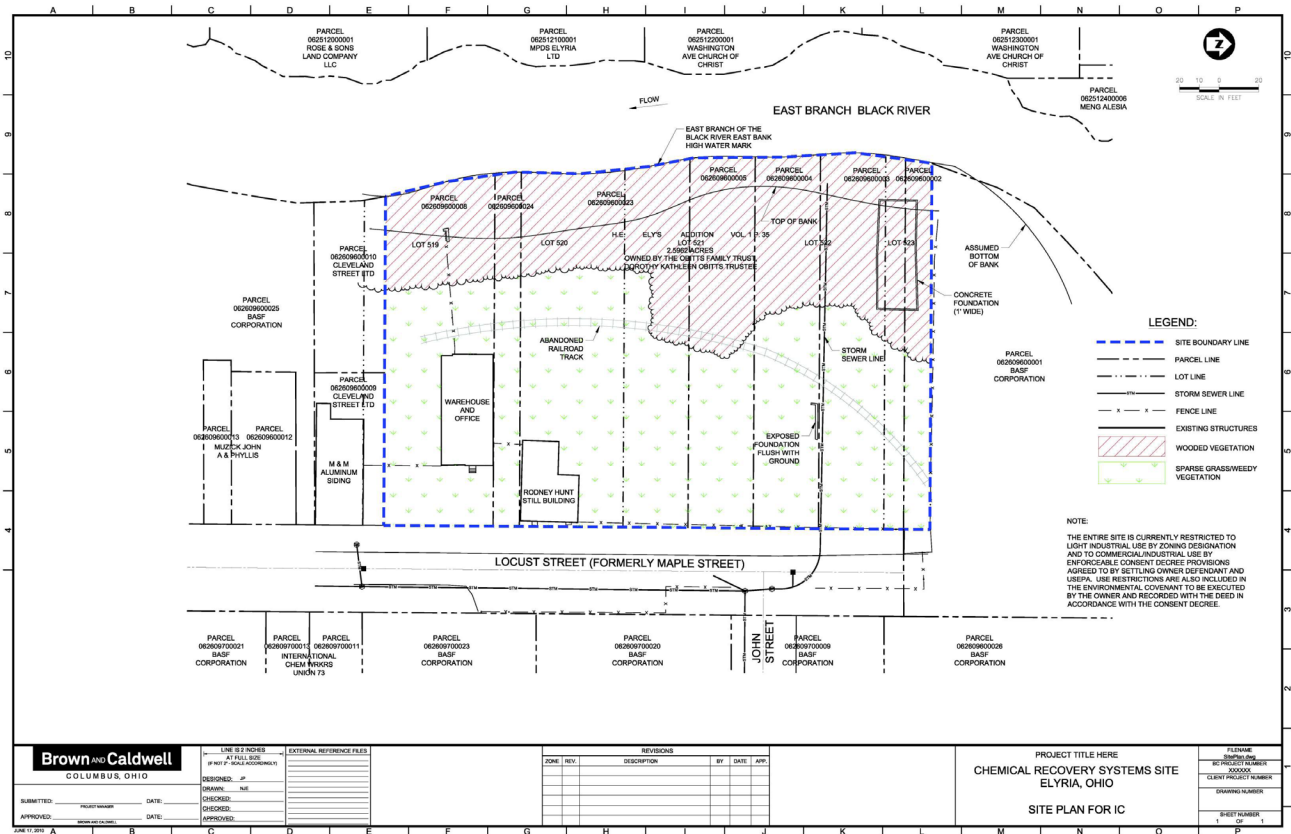
EPA. 2017. Email regarding Ecological Screening Criteria. From Jennifer Dodds, Ecological Risk Assessor. To R5_LCD_RRB_CAS1@epa.gov; R5_LCD_RRB_CAS2@epa.gov. February 14.

EPA. 2018. Region 4 Ecological Risk Assessment Supplemental Guidance, March 2018 Update. https://www.epa.gov/sites/production/files/201803/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf

EPA. 2019. Interim Recommendations to Address Groundwater Contaminated with Perfluorooctanoic Acid and Perfluorooctanesulfonate, December 19. <https://www.epa.gov/pfas/interim-recommendations-addressing-groundwater-contaminated-pfoa-and-pfos>

EPA. 2019. Procedures for Addressing Potential 1,4-Dioxane at Region 5 Superfund Sites. Region 5 internal memorandum

APPENDIX B – Institutional Controls Information



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 Kind: MISCELLANEOUS
 Recorded: 07/20/2010 at 01:23:15 PM
 Fee Amt: \$180.00 Page 1 of 19
 Lorain County, Ohio
 Judith M Nedwick County Recorder

NO TRANSFER NECESSARY

MARK R. STEWART
 LORAIN COUNTY AUDITOR

JP 7/20/10
 DEPUTY

File **2010-0340544**
 To be recorded with Deed
 Records - ORC § 317.08

ENVIRONMENTAL COVENANT

This Environmental Covenant is made as of the 25th day of June, 2010, by Owner Dorothy Kathleen Obitts (as further identified below) and Holder Dorothy Kathleen Obitts (as further identified below) pursuant to Ohio Revised Code ("ORC") §§ 5301.80 to 301.92 for the purpose of subjecting the Site (described below) to the activity and use limitations and to the rights of access described below.

Whereas, the United States Environmental Protection Agency ("U.S. EPA"), pursuant to Section 104(b) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. § 9604(b), conducted an investigation of the Chemical Recovery Systems, Inc. Site ("Site") in September 1981 and detected the presence of hazardous substances in soil, groundwater, surface water, and sediment samples collected from the Site; and

Whereas, U.S. EPA, pursuant to Section 7003 of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6973, and Section 301(a) of the Clean Water Act, 33 U.S.C. § 1311(a), entered into a Consent Decree with Chemical Recovery Systems, Inc. ("CRS") on July 12, 1983 to implement the following actions at the Site: excavate all visibly contaminated soil identified during a joint inspection conducted by U.S. EPA and CRS; excavate the perimeter of a building in the northwest corner of the Site; dispose of all removed soil at an U.S. EPA-approved disposal facility; backfill the excavated areas with clean clay containing fill; and grade the Site towards the East Branch of the Black River on the western border of the Site. U.S. EPA concluded that CRS complied with the Consent Decree by September 15, 1983; and

Whereas, on March 2, 2001, U.S. EPA issued General Notices of Potential Liability and information requests under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e)(2), to 129 parties identified by U.S. EPA as being potentially responsible for arranging treatment of hazardous materials at the Site; and

Whereas, on May 29, 2002, U.S. EPA signed an Administrative Order on Consent with 24 potentially responsible parties to perform a Remedial Investigation/Feasibility Study (RI/FS), and whereas, on September 30, 2003, U.S. EPA signed an Administrative Order on Consent with 83 *de minimis* contributors; and

Whereas, in the RI commenced in July 2003, U.S. EPA found that the following contaminants had been released into the soil at the Site: tetrachloroethene, trichloroethene, 1,2-dichloroethene, 1,2-dichloroethane, vinyl chloride, benzene, toluene, ethylbenzene, xylenes, chloroform, benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, antimony, arsenic, iron, lead, aroclor-1221, aroclor-1242, aroclor-1248, aroclor-1254, and aroclor-1260. In the same RI, U.S. EPA found that the following

contaminants had been released into the groundwater at the Site: 1,1,1-trichloroethane, 1,2-dichloroethane, 1,1-dichloroethane, 1,1-dichloroethene, benzene, acetone, chloroethane, chloroform, cis-1,2-dichloroethene, ethylbenzene, methylene chloride, tetrachloroethene, styrene, toluene, trichloroethene, vinyl chloride, xylenes, fluorene, isophorone, naphthalene, antimony, arsenic, cadmium, iron, lead, manganese, aroclor-1016, aroclor-1221, aroclor-1232, aroclor-1242, aroclor-1248, aroclor-1254, and aroclor-1260. In the same RI, U.S. EPA found that benzo(a)pyrene and arsenic had been released into the sediment at the Site and that arsenic had been released into the surface water at the Site; and

Whereas, the Site is a Superfund Alternative Site, and U.S. EPA may, pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, propose the inclusion of the Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B; and

Whereas, on October 30, 2007, U.S. EPA issued a Record of Decision (ROD) to address the actual or threatened release of hazardous substances at the Site. The selected remedy includes air monitoring during construction, excavation and off-site disposal of contaminated soil from the northwest corner of the Site, soil sampling verification, the placement of two feet of clean soil cover over the entire Site, and the implementation of institutional controls; and

Whereas, the ROD finds that the institutional controls will: (1) prohibit the compromise of the cover system implemented at the Site; (2) prevent the use of groundwater for potable and non-potable purposes until Safe Drinking Water Standards are met for the contaminants in the groundwater; (3) restrict the use of the Site for anything but Commercial/Industrial Activities (as hereafter defined); and (4) restrict the building of structures on the Site without U.S. EPA notification and approval. The purpose of institutional controls is to protect the performance of the remedy, limit the future use of the property where remedial action is taken, and prevent the exposure of humans or the environment to contaminants; and

Whereas, the parties hereto have agreed: (1) to grant a permanent right of access over the Site to the Access Parties (as hereafter defined) for purposes of implementing, facilitating, and monitoring the remedial action; and (2) to impose on the Site activity and use limitations as covenants that will run with the land for the purpose of protecting human health and the environment; and

Now therefore, Owner and U.S. EPA agree to the following:

1. Definitions. All capitalized terms shall have the definitions identified herein. A capitalized term in this Environmental Covenant which is not defined herein shall have the same meaning as set forth in ORC §§ 5301.80 to 5301.92, CERCLA, or the Record of Decision for the Site.

A. Access Parties. This term means U.S. EPA, Ohio Environmental Protection Agency ("Ohio EPA"), and any parties that agree to perform a remedial action at the Site pursuant to an order or decree executed by U.S. EPA, their successors and assigns, and their respective officers, employees, agents, contractors, authorized representatives, and other invitees (collectively, "Access Parties"). The parties that may agree to perform a remedial action at the Site pursuant to an order or decree executed by U.S. EPA, and that

thereby become Access Parties, include, but are not limited to, those parties named in Exhibit D of the Environmental Covenant. The parties named in Exhibit D have been identified as potentially responsible parties by U.S. EPA. Any parties that are so identified in the future and that thereafter agree to perform a remedial action at the Site pursuant to an order or decree executed by U.S. EPA are also Access Parties.

B. Agencies. This term means U.S. EPA and/or Ohio EPA and their respective officers, employees, agents, contractors, authorized representatives, and other invitees. For the purposes of this Environmental Covenant, U.S. EPA is the agency responsible for overseeing the remedial action and activity and use limitations at the Site and, therefore, is the Agency as defined by ORC § 5301.80(B) and the applicable agency as that term is used in ORC §§ 5301.80 to 5301.92.

C. Best Efforts. This term includes the payment of reasonable sums of money to obtain access; an agreement to restrict land or water use, a Proprietary Control, and/or an agreement to release or subordinate a prior lien or encumbrance.

D. Commercial/Industrial Activities. This term includes, but is not limited to: (i) wholesale and retail sales and service activities including, but not limited to, retail stores, and automotive fuel, sales, and service facilities; (ii) governmental, administrative, and general office activities; (iii) manufacturing, processing, packaging, handling, and warehousing activities, including, but not limited to, production, storage, and sales of durable goods and other non-food chain products; (iv) research and development, including all ancillary and supporting activities incident thereto; (v) other office and warehousing activities including, but not limited to, production, processing, storage, and sales of chemicals, chemical intermediates, blend-stocks, feed-stocks, and by-products; and (vi) activities which are consistent with or similar to the above listed activities; together with related parking areas and driveways, but excluding Residential and Other Prohibited Activities.

E. Holder. Dorothy Kathleen Obitts, who resides at 1130 Gulf Road, Elyria, Ohio 44035, is the Holder of the Site.

F. Owner. Dorothy Kathleen Obitts, who resides at 1130 Gulf Road, Elyria, Ohio 44035, is the Owner of the Site.

G. Proprietary Control. This term means easements or covenants running with the land that (i) limit land, water, or resource use and/or provide access rights; and (ii) are created as a result of the granting of an interest in real property from one party (grantor) to another party (grantee) by an instrument that is recorded in the appropriate land records office.

H. Residential and Other Prohibited Activities. This term includes, but is not limited to: (i) single and multi-family dwellings and rental units; (ii) transient residential facilities, including hotels and motels; (iii) day care centers and preschools; (iv) public and private elementary and secondary schools; (v) hospitals, assisted living facilities, and other extended care medical facilities and medical and dental offices; (vi) food

preparation and food service facilities, including food stores, restaurants, banquet facilities, and other food preparation or sales facilities; and (vii) indoor or outdoor entertainment and recreational facilities.

I. Transferee. This term means any future owner of any interest in the Site or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees. This term does not include the Agencies.

2. Environmental Covenant. This instrument is an Environmental Covenant executed and delivered pursuant to ORC §§ 5301.80 to 5301.92.

3. Site. The eight (8) parcels of real property that consist of approximately 2.5 acres located at 142 Locust Street, City of Elyria, Lorain County, Ohio (the "Site") and which are subject to the environmental covenants set forth herein are described in Exhibit A attached hereto and incorporated by reference herein. The Site is shaded on the copy of the Lorain County, Ohio Auditor's tax map (the "Map") attached hereto as Exhibit B. The entire Site is subject to the activity and use limitations described in Paragraph 4 below.

4. Activity and Use Limitations on the Site.

A. Owner covenants for herself and her heirs, successors, and assigns not to permit the Site to be used in any manner that would interfere with or adversely affect the integrity or protectiveness of the remedial action which has been implemented or which will be implemented in accordance with the Record of Decision unless the written consent of U.S. EPA to such use is first obtained. Owner's agreement to restrict the use of the Site shall include, but not be limited to, not permitting any drilling, digging, building, or the installation, construction, removal, or use of any buildings, wells, pipes, roads, ditches, or any other structures on the Site unless the written consent of U.S. EPA to such use or activity is first obtained.

B. Owner covenants for herself and her heirs, successors, and assigns that the Site shall be used solely for Commercial/Industrial Activities and only after written consent of U.S. EPA to such use is first obtained. Owner acknowledges and agrees that the Site will be remediated only for Commercial/Industrial Activities. The Site shall not be used for Residential and Other Prohibited Activities.

C. Owner covenants for herself and her heirs, successors, and assigns that no potable or non-potable use of Site groundwater will occur, either on or off the Site, unless the written consent of U.S. EPA to such use is first obtained. Owner's agreement to restrict the use of the Site shall include not permitting the installation of groundwater wells for potable and non-potable uses at the Site. Owner shall use her Best Efforts to implement controls, including deed restrictions, easements, or other assurances, that prohibit the installation of groundwater drinking water supplies within the area of potential groundwater contamination at the Site and in areas downgradient of the Site with contaminated groundwater.

D. The restrictions regarding future development of the Site may be modified pursuant to the written consent of U.S. EPA based on a demonstration by the Owner that the proposed use or activity will not interfere with the remedial action or pose a threat to human health and the environment. The restrictions regarding the installation of groundwater drinking water wells at the Site may be modified pursuant to the written consent of U.S. EPA based on a demonstration by the Owner that groundwater remediation standards have been met and maintained.

5. Running with the Land. This Environmental Covenant shall be binding upon the Owner and all heirs, successors, and assigns in interest, including any Transferee, and shall run with the land, pursuant to ORC § 5301.85, subject to amendment or early termination as set forth herein.

6. Notice to Agencies. Neither Owner nor any Holder or Transferee shall transfer any interest in the Site, or make proposed changes in the use of the Site, or make applications for building permits or proposals for any work at the Site, without first providing notice to the Agencies and obtaining any approvals or consents thereto.

7. Access to the Site. Pursuant to the Consent for Access to Property Agreement, Owner hereby grants to the Access Parties an unrestricted right of access to the Site to take any action authorized by law; any action related to the implementation, oversight, or enforcement of this Environmental Covenant or the Record of Decision; or any action otherwise necessary to protect human health and the environment. Such rights of access include, but are not limited to, conducting sampling at the Site; performing other actions to investigate contamination on the Site that U.S. EPA may determine to be necessary; and taking any response action to address any release or threatened release of a hazardous substance, pollutant, or contaminant which U.S. EPA determines may pose an imminent and substantial endangerment to the public health or the environment. The rights of access granted under this Paragraph 7 shall be irrevocable while this Environmental Covenant remains in full force and effect. The rights of access do not limit any statutory authority of the Agencies, nor do they provide any rights against the Agencies.

8. Administrative Record.

A. On October 30, 2007, U.S. EPA issued a Record of Decision (ROD) as described in the seventh "Whereas" clause at the beginning of this Environmental Covenant. The ROD sets forth U.S. EPA's determination of the appropriate remedial action to be implemented at the Site to address Site contamination. The ROD was based upon the administrative record for the Chemical Recovery Systems, Inc. Site. Copies of the administrative record for the Site are maintained at the following locations: U.S. EPA Region 5, Superfund Records Center (7th Floor), 77 W. Jackson, Chicago, Illinois 60604; and Elyria Public Library, 320 Washington Avenue, Elyria, Ohio 44035.

B. The ROD describes institutional controls as one of the major components of the appropriate remedial action to be implemented at the Site. Owner has executed and delivered this Environmental Covenant to implement the institutional controls with respect to the Site that are identified in the ROD.

9. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Site or any portion thereof shall contain a notice of the activity and use limitations and grants of access set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. For instruments conveying any interest in the Site or any portion thereof, the notice shall be substantially in the form set forth in Exhibit E. Owner, Holder, and Transferee shall notify the Agencies within ten (10) days after each conveyance of an interest in any portion of the Site. The notice shall include the name, address, and telephone number of the Transferee; a copy of the deed or other documentation evidencing the conveyance; a legal description of the property being transferred; a survey map of the property being transferred; and the closing date of the transfer of ownership of the property.

10. Amendment or Early Termination. This Environmental Covenant may be modified, amended, or terminated while Owner owns the property only by a writing signed by Owner and U.S. EPA pursuant to ORC § 5301.90. A modification, amendment, or termination of this Environmental Covenant shall comply with the formalities required for the execution of a deed in Ohio and be recorded in the same manner as a deed in the Office of the Recorder of Lorain County, Ohio. Upon transfer of all or any portion of the Site, Owner waives any rights that it might otherwise have under ORC § 5301.90 to withhold its consent to any amendments, modifications, or termination of this Environmental Covenant, to the extent that it has transferred its interest in that portion of the Site affected by said modification, amendment, or termination. The rights of Owner's heirs, successors, and assigns in interest as to a modification, amendment, or termination of this Environmental Covenant are governed by the provisions of ORC § 5301.90.

11. Representations and Warranties of Owner. Owner represents and warrants that:

- A.) Owner is the sole owner of the Site;
- B.) Owner holds fee simple title to the Site which is free, clear and unencumbered except for those interests or encumbrances listed in Exhibit C, which are fully incorporated by reference herein;
- C.) Owner has identified all other parties that hold any interest or encumbrance in the Site and notified such parties of the Owner's intention to enter into this Environmental Covenant;
- D.) Owner has the power and authority to make and enter into this Environmental Covenant as Owner and Holder, to grant the rights and privileges herein provided, and to carry out all obligations of Owner and Holder hereunder;
- E.) This Environmental Covenant has been executed and delivered pursuant to the Record of Decision for the Site; and
- F.) This Environmental Covenant will not materially violate or contravene or constitute a material default under any other agreement, document, or

instrument to which Owner is a party or by which Owner may be bound or affected.

12. Right to Enforce Agreement Against Owner; Equitable Remedies. Compliance with this Environmental Covenant may be enforced pursuant to ORC § 5301.91 or other applicable law. In the event that Owner or any other person violates the terms of this Environmental Covenant, including the activity and use limitations on the Site set forth in Paragraph 4 and the rights of access granted under Paragraph 7, then U.S. EPA, Ohio EPA, or any party that agreed to perform a remedial action at the Site pursuant to an order or decree executed by U.S. EPA and that is adversely affected by such violation (for example, any party that is prevented from conducting its remedial obligations at the Site pursuant to the order or decree executed by U.S. EPA) shall have the right to immediately seek judicial relief, including, but not limited to, an appropriate equitable remedy. Any court having jurisdiction is hereby granted the right to issue a temporary restraining order and/or preliminary injunction upon application by U.S. EPA, Ohio EPA, or by such adversely affected party without notice or posting bond. Owner and each Transferee by accepting a deed to the Site or to any part thereof waives all due process or other constitutional right to notice and hearing before the grant of a temporary restraining order and/or preliminary injunction pursuant to this Paragraph 12. Failure to timely enforce compliance with this Environmental Covenant by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party's right to take action to enforce any non-compliance.

13. Compliance Reporting. Owner and any Transferee shall submit to the Agencies on an annual basis a written certification which complies with the requirements of Ohio Administrative Code 3745-50-42 (B)-(D) that the activity and use limitations remain in place and are being complied with. At the same time, the Owner shall report compliance with this Environmental Covenant pursuant to ORC § 5301.82(B)(1).

13. Future Cooperation; Execution of Supplemental Instruments. Owner agrees to cooperate fully with the Agencies and any parties that agree to perform a remedial action at the Site pursuant to an order or decree executed by U.S. EPA and to assist them in implementing the rights granted them under this Environmental Covenant. In furtherance thereof, Owner agrees to execute and deliver such additional documents as may be requested by the Agencies to supplement or confirm the rights granted hereunder. Owner also agrees to cooperate with the Agencies to obtain compliance with the terms of this Environmental Covenant if there is a violation of this Environmental Covenant.

14. Cumulative Remedies; No U.S. EPA Waiver of Authority. All of the rights and remedies set forth in this Environmental Covenant or otherwise available at law or in equity are cumulative and may be exercised without regard to the adequacy of, or exclusion of, any other right, remedy, or option available hereunder or at law. The failure to exercise any right granted hereunder, to take action to remedy any violation by Owner of the terms hereof, or to exercise any remedy provided herein shall not be deemed to be a waiver of any such right or remedy, and no forbearance on the part of U.S. EPA and no extension of the time for performance of any obligations of Owner hereunder shall operate to release or in any manner affect U.S. EPA's rights hereunder. No action or decision by U.S. EPA related to environmental remediation at the Site shall independently give rise to judicial review under this Environmental Covenant.

Nothing in this Environmental Covenant shall restrict the U.S. EPA from exercising any authority it may have under applicable law. U.S. EPA reserves all of its statutory and regulatory powers, authorities, rights, and remedies, both legal and equitable.

15. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

16. Recordation. Within thirty (30) days after the date of the final required signature upon this Environmental Covenant and pursuant to ORC § 5301.88, Owner shall file this Environmental Covenant for recording, in the same manner as a deed to the Site, with the Lorain County Recorder's Office.

17. Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Site with the Lorain County Recorder's Office.

18. Distribution of Environmental Covenant. Within sixty (60) days after the date of the final required signature, Owner shall distribute a file- and date-stamped copy of the recorded Environmental Covenant to: Ohio EPA, Lorain County, City of Elyria, each party holding a recorded interest in the Site, and any parties that agree to perform a remedial action at the Site pursuant to an order or decree executed by U.S. EPA.

19. Notices. Owner shall notify U.S. EPA within thirty (30) days of becoming aware of any violation of this Environmental Covenant and shall remedy the breach within sixty (60) days of becoming aware of the event, or such time frame as may be agreed upon by the Owner or Transferee and U.S. EPA. All other notices, requests, demands, or other communications required or permitted under this Environmental Covenant shall be given in the manner and with the effect as set forth herein.

20. Governing Law. This Environmental Covenant shall be construed according to and governed by the laws of the State of Ohio and the United States of America.

21. Captions. All paragraph captions are for convenience of reference only and shall not affect the construction of any provision of this Environmental Covenant.

22. Time of the Essence. Time is of the essence of each and every performance obligation of Owner under this Environmental Covenant.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, Owner and U.S. EPA have executed and delivered this Environmental Covenant as of the date first above written.

OWNER

Dorothy Kathleen Obitts
Dorothy Kathleen Obitts, a/k/a
Dorothy K. Obitts

STATE OF OHIO)

COUNTY OF LORAIN) SS.

JUNE The foregoing instrument was acknowledged before me this 25th day of 2010, by Dorothy Kathleen Obitts, a/k/a Dorothy K. Obitts.

KEITH H. KAPANKA
Notary Public for the State of Ohio
My Commission Expires Sept. 26, 2010
Recorded in Lorain County

Keith H. Kapanka
Notary Public

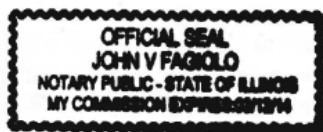
UNITED STATES OF AMERICA
On behalf of the Administrator of the
United States Environmental Protection Agency

By: Richard C. Karl
Richard C. Karl, Director,
Superfund Division, Region 5

STATE OF ILLINOIS)

COUNTY OF COOK) SS.

The foregoing instrument was acknowledged before me this 7TH day of JULY, 2010, by Richard C. Karl, Director, Superfund Division, Region 5 of the United States Environmental Protection Agency, on behalf of the United States of America.



John V. Fagiollo
Notary Public

EXHIBIT A

Legal Description of the Site

PARCEL NO. 1

Situated in the City of Elyria, County of Lorain and State of Ohio, and known as being part of Sublot No. 523 in Block No. 96 of H. Ely's Addition to Elyria, of Original Elyria Township Lots No. 96 and other lots, as shown by the recorded plat in Volume 1 of Maps, Page 35 of Lorain County Records and bounded and described as follows:

Being a strip of land 20 feet in width North of and adjoining premises described in Parcel No. 2 below. Commencing at a point in the West line of Maple Street projected 35 feet Northerly of the South line of the said Lot No. 523; thence Westerly parallel to the South line of said Lot No. 523 and 35 feet distant Northerly therefrom to the Easterly bank of Black River at high water mark; thence Southerly following the course and meanderings of said River at high water mark to a point 15 feet Northerly of the South line of said Lot No. 523; thence Easterly parallel to the said South line of said Lot No. 523 and 15 feet distance Northerly therefrom to the Westerly line of Maple Street, thence Northerly on the Westerly line of said Maple Street projected North 20 feet to the place of beginning, as appears by said plat, be the same more or less, but subject to all legal highways. Excepting therefrom the above described premises any part thereof resulting through change in the course of Black River occasioned by other than natural causes other than accretion and any encroachments thereon.

Parcel ID 06-26-096-000-002

PARCEL NO. 2A

Situated in the City of Elyria, County of Lorain and State of Ohio, and known as being the Northerly one-half of Sublot No. 522 in Block No. 96 in H. Ely's Addition to Elyria of Original Elyria Township Lot No. 96 and other lots, as shown by the recorded plat in Volume 1 of Maps, Page 35 of Lorain County Records and having a frontage of 49.50 feet on the Westerly line of Maple Street, extending back of equal width, the East bank of the East branch of Black River, as appears by said plat, be the same more or less, but subject to all legal highways.

Parcel ID 06-26-096-000-003

PARCEL NO. 2B

Situated in the City of Elyria, County of Lorain and State of Ohio, and known as being the Southerly 15 feet between parallel lines of Sublot No. 523 in Block No. 96 of H. Ely's Addition to Elyria of Original Elyria Township Lot No. 96, and other lots as shown by the recorded plat in Volume 1, Page 35 of Lorain County Records, and having a frontage of 15 feet on the Westerly side of Maple Street, extending back of equal width to the East bank of the East branch of Black River, as appears by said plat, be the same more or less, but subject to all legal highways.

PARCEL NO. 3

Situated in the City of Elyria, County of Lorain and State of Ohio, and known as being the Southerly one-half of Sublot No. 522 in Block No. 96 in H. Ely's Addition to Elyria of Original Elyria Township Lot No. 96 and other lots, as shown by the recorded plat in Volume 1 of Maps, Page 35 of Lorain County Records, and having a frontage of 49.50 feet on the Westerly side of Maple Street, extending back of equal width to the East bank of the East branch of Black River, as appears by said plat, be the same more or less, but subject to all legal highways.

Parcel ID 06-26-096-000-004

PARCEL NO. 4

Situated in the City of Elyria, County of Lorain and State of Ohio, and known as being the Northerly one-half of Sublot No. 521 in Block No. 96 of H. Ely's Addition to Elyria of Original Elyria Township Lot No. 96 and other lots, as shown by the recorded plat in Volume 1, Page 35 of Lorain County Records, and having a frontage of 49.50 feet on the Westerly side of Maple Street, extending back of equal width to the East bank of the East Branch of the Black River, as appears by said plat, be the same more or less, but subject to all legal highways.

Parcel ID 06-26-096-000-005

PARCEL NO. 5

Situated in the City of Elyria, County of Lorain and State of Ohio, and known as being all of Sublot No. 520 and the Southerly 49.50 feet of Sublot No. 521, in Block No. 96, between the branches of Black River in H.E. Ely's Addition to the Village of Elyria, as shown by the recorded plat in Volume 1 of Maps, Page 35 of Lorain County Records and having a frontage of 148.50 feet along the Westerly line of North Maple Street and extending Westerly between parallel lines to Black River at high water line. Sublot No. 520 being 99.0 feet in width as measured along North Maple Street and that portion of Sublot No. 521 being 49.50 feet frontage along the Westerly line of said Street, be the same more or less, but subject to all legal highways. Excepting therefrom the following parcel of land:

Situated in the City of Elyria, County of Lorain and State of Ohio, and known as being the Southerly 20.00 feet of Sublot No. 520 in Block No. 96, between the branches of Black River, in H.E. Ely's Addition to the Village of Elyria, as shown by the recorded plat in Volume 1 of Maps, Page 35 of Lorain County Records, and bounded and described as follows:

Beginning at a point on the Westerly line of Locust Street, formerly Maple Street, at the Southeasterly corner of said Sublot No. 520; thence Northerly along the Westerly line of Locust Street, a distance of 20.00 feet; thence Westerly in a line parallel to and distant 20.00 feet by rectangular measurement from the Southerly line of said Sublot No. 520, to a point in the High Water Mark of the East Branch of Black River; thence downstream along said High Water Mark to the Southwesterly corner of said Sublot No. 520 and being the Northerly line of land conveyed to Franklin H. and Irene L. Payne by deed dated August 6, 1958, and recorded in Deed Volume

727, Page 29 of Lorain County Records, the Southeasterly corner of said Sublot No. 520 and a point on the Westerly line of said Sublot No. 520, and the place of beginning, be the same more or less, but subject to all legal highways.

Parcel ID 06-26-096-000-023

PARCEL NO. 6

Situated in the City of Elyria, County of Lorain and State of Ohio, and known as being the Southerly 20.0 feet of Sublot No. 520 in Block 96, between the branches of Black River, in H.E. Ely's Addition to the Village of Elyria as recorded in Volume 1, Page 35 of Lorain County Record of Plats, and bounded and described as follows:

Beginning at a point on the Westerly line of Locust Street, formerly Maple Street, at the Southeasterly corner of said Sublot No. 520; thence Northerly along the Westerly line of Locust Street, a distance of 20.00 feet; thence Westerly in a line parallel with and distant 20.00 feet by rectangular measurement from the Southerly line of said Sublot No. 520, to a point in the High Water Mark of the East Branch of Black River; thence downstream along said High Water Mark to the Southwesterly corner of said Sublot No. 520; thence Easterly along the Southerly line of said Sublot No. 520 and being the Northerly line of land conveyed to Franklin H. and Irene L. Payne by deed dated August 6, 1958 and recorded in Deed Volume 727, Page 29 of Lorain County Records, to the Southeasterly corner of said Sublot No. 520, and the place of beginning, be the same more or less, but subject to all legal highways.

Parcel ID 06-26-096-000-024

PARCEL NO. 7

Situated in the City of Elyria, County of Lorain and State of Ohio, and being a part of Sublot No. 519, Block 96 in the H.E. Ely Addition to the Village, now City of Elyria, between the branches of Black River, as recorded in Volume 1, Page 35 of Lorain County Record of Plats, bounded and described as follows:

Beginning at an iron pin at the Northeasterly corner of said Sublot No. 519, Block 96, and on the Westerly line of Locust Street (formerly Maple Street); thence along the Northerly line of said Sublot No. 519, Block 96, Westerly a distance of 222.77 feet to an iron pin; thence continuing along the Northerly line of said subplot Westerly to high water line of the East Branch of Black River; thence Southerly down stream and measurement, Northerly from the Southerly line of said Sublot No. 519; along said high water line to a point distant 16.0 feet by rectangular thence Easterly and along a line distant 16.0 feet by rectangular measurement Northerly from the Southerly line of said Sublot No. 519 to the Easterly line of said Sublot No. 519 and Westerly line Locust Street (formerly Maple Street); thence Northerly and along the Easterly line of Sublot No. 519; and along the Westerly line of Locust Street (formerly Maple Street) a distance of about 83.0 feet to the place of beginning, be the same more or less, but subject to all legal highways and waterways. Excepting from the above described premises any part thereof resulting through

change in the course of Black River occasioned by other than natural causes or by natural causes other than accretion.

Parcel ID 06-26-096-000-008

Property Address: 142 Locust Street, Elyria, Ohio

Tax ID No.: 06-26-096-000-002; -003; -004; -005; -023; -024; -008

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EXHIBIT B

Map of the Site

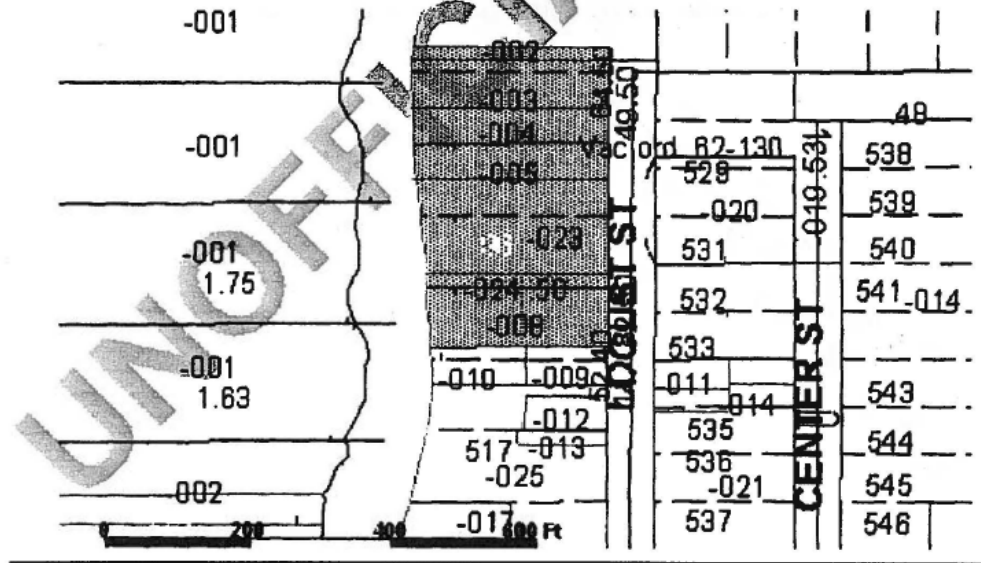


EXHIBIT C

Encumbrances on the Site

1. Taxes for the year 2009 amounting to \$100.86 are a lien and unpaid as to Parcel No. 1.
Taxes for the year 2009 amounting to \$252.16 are a lien and unpaid as to Parcel No. 2.
Taxes for the year 2009 amounting to \$247.96 are a lien and unpaid as to Parcel No. 3.
Taxes for the year 2009 amounting to \$247.96 are a lien and unpaid as to Parcel No. 4.
Taxes for the year 2009 amounting to \$1,114.30 are a lien and unpaid as to Parcel No. 5.
Taxes for the year 2009 amounting to \$115.88 are a lien and unpaid as to Parcel No. 6.
Taxes for the year 2009 amounting to \$628.60 are a lien and unpaid as to Parcel No. 7.
Taxes for the year 2010 are a lien, but not yet due or payable.
Subject to Special Taxes and Assessments, if any.
Permanent Parcel No. 06-26-096-000-002
Permanent Parcel No. 06-26-096-000-003
Permanent Parcel No. 06-26-096-000-004
Permanent Parcel No. 06-26-096-000-005
Permanent Parcel No. 06-26-096-000-023
Permanent Parcel No. 06-26-096-000-024
Permanent Parcel No. 06-26-096-000-008
2. Right of Way recorded in Deed Volume 95, Page 270 of Lorain County Records, as to Parcel No. 2.
3. Right of Way recorded in Deed Volume 116, Page 123 of Lorain County Records, as to Parcel No. 3.
4. Right of Way recorded in Deed Volume 122, Page 96 of Lorain County Records, as to Parcel No. 4.
5. Right of Way recorded in Deed Volume 160, Page 487 of Lorain County Records, as to Parcel No. 1.
6. Common Driveway Easement recorded in Deed Volume 375, Page 92 of Lorain County Records, as to Parcel Nos. 5 and 6.
7. Right of Way recorded in Deed Volume 379, Page 38 of Lorain County Records, as to Parcel No. 7.
8. Driveway Easement recorded in Deed Volume 964, Page 436 of Lorain County Records, as to Parcel No. 6.

EXHIBIT D

Parties that may agree to perform a remedial action at the Site pursuant to an order or decree executed by U.S. EPA

1. CNA Holdings LLC
2. Akzo Nobel Paints LLC
3. The Goodyear Tire & Rubber Company
4. Chevron Environmental Management Company
5. PPG Industries, Inc.
6. The Sherwin Williams Company
7. United States Steel Corporation
8. Avery Dennison Corporation
9. Ashland Inc.
10. Mattel, Inc.
11. Goodrich Corporation
12. Jamestown Paint & Varnish
13. Alcatel-Lucent USA Inc.
14. Continental Tire North America, Inc.
15. Valspar Corporation

EXHIBIT E

Notice upon Conveyance of Site or any Portion thereof

Notice

THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT DATED _____, 2010, WHICH WAS RECORDED IN THE OFFICIAL RECORDS OF THE LORAIN COUNTY RECORDER ON _____, 2010, IN [DOCUMENT ²⁰¹⁰⁰³⁴⁰~~20100341~~ OR BOOK _____, PAGE _____]. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS AND ACCESS RIGHTS:

Activity and Use Limitations on the Site. Pursuant to Paragraph 4 of the Environmental Covenant, the entire Site is subject to the following activity and use limitations:

(a) The Site shall not be used in any manner that would interfere with or adversely affect the integrity or protectiveness of the remedial action which has been implemented or which will be implemented in accordance with the Record of Decision for the Site unless the written consent of the United States Environmental Protection Agency ("U.S. EPA") to such use is first obtained.

(b) The Site shall be used solely for Commercial/Industrial Activities, as that term is defined in the Environmental Covenant, and only after written consent of U.S. EPA to such use is first obtained. The Site shall not be used for Residential and Other Prohibited Activities, as that term is defined in the Environmental Covenant.

(c) No potable or non-potable use of Site groundwater will occur, either on or off the Site, unless the written consent of U.S. EPA to such use is first obtained. No groundwater wells will be installed, for either potable or non-potable use, with the exception of those wells approved by U.S. EPA.

(d) The restrictions regarding future development of the Site may be modified pursuant to the written consent of U.S. EPA based on a demonstration that the proposed use or activity will not interfere with the remedial action or pose a threat to human health and the environment. The restrictions regarding the installation of groundwater drinking water wells at the Site may be modified pursuant to the written consent of U.S. EPA based on a demonstration that the groundwater remediation standards have been met and maintained.

Notice to Agencies. No transferee in interest may make proposed changes in the use of the Site, or make applications for building permits or proposals for any work at the Site, without first providing notice to U.S. EPA and Ohio Environmental Protection Agency ("Ohio EPA") and obtaining any approvals or consents thereto.

Access to the Site. Pursuant to Paragraph 7 of the Environmental Covenant, U.S. EPA, Ohio EPA, and any parties that agree to perform a remedial action at the Site pursuant to an order or decree executed by U.S. EPA, their successors and assigns, and their respective officers, employees, agents, contractors, authorized representatives, and other invitees (collectively,

"Access Parties") shall have an unrestricted right of access to the Site to take any action authorized by law; any action related to the implementation, oversight, or enforcement of the Environmental Covenant or the Record of Decision for the Site; or any action otherwise necessary to protect human health and the environment. Such rights of access include, but are not limited to, conducting sampling at the Site; performing other actions to investigate contamination on the Site that U.S. EPA may determine to be necessary; and taking any response action to address any release or threatened release of a hazardous substance, pollutant, or contaminant which U.S. EPA determines may pose an imminent and substantial endangerment to the public health or the environment.

UNOFFICIAL

UNOFFICIAL

DOROTHY OBITTS
1130 GULF RD
ELYRIA, OH 44035

U.S. ENVIRONMENTAL
PROTECTION AGENCY

JUN 28 2010

OFFICE OF REGIONAL
COUNSEL

APPENDIX C– Public Notice



**EPA Begins Review
of Chemical Recovery Superfund Site**
Elyria, Ohio

U.S. Environmental Protection Agency (EPA) is conducting a five-year review of the Chemical Recovery Superfund site at 142 Locust St., Elyria. The Superfund law requires regular checkups of sites that have been cleaned up or where cleanup has been ongoing for at least five years – with waste managed on-site – to make sure the cleanup continues to protect people and the environment. This is the first five-year review of this site.

In 2015, the potentially responsible parties under the supervision of U.S. EPA began cleaning up metal and chemical contamination at the site. The cleanup at the site consists of disposing of contaminated debris, removing contaminated soil from the northwest corner of the property, and placing clean cover soil over the entire site.

More information is available at the Elyria Central Public Library, 320 Washington Ave.; and at www.epa.gov/superfund/chemical-recovery. The review should be completed by the end of July 2020.

The five-year review is an opportunity for you to tell U.S. EPA about site conditions and any concerns you have. If you have any questions or comments about this site, contact:

Adrian Palomeque
Community Involvement Coordinator
312-353-2035
palomeque.adrian@epa.gov

Judy Canova
Remedial Project Manager
312-353-7997
canova.judy@epa.gov

You may also call U.S. EPA toll-free at 800-621-8431, 9:30 a.m. to 5:30 p.m., weekdays.

APPENDIX D: Site Groundwater Quality Data Review

Sample ID	Date Sampled	Trichloroethene		Vinyl chloride		Xylenes (total)		Acenaphthene		Acenaphthylene		Acetophenone		Anthracene		Benzo[a]anthracene		Benzo[a]pyrene		Benzo[b]fluoranthene		Benzo[g,h,i]perylene		Benzo[k]fluoranthene		1,1'-Biphenyl		Chrysene		Dibenz(a,h)anthracene		Dibenzofuran		2,4-Dinitrotoluene		2,6-Dinitrotoluene	
		µg/L	VOCS	µg/L	VOCS	µg/L	VOCS	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs	µg/L	SVOCs
MW-1	11/13/2003	0.48	3	2.1	<10	<50	NA	<10	<0.19	<0.19	<0.95	<0.19	<10	<0.19	<0.19	NA	<0.19	<0.19	NA	<10	<0.19	<0.19	<10	<0.19	<0.19	<0.95	NA	<10	<0.19	<10	<0.95	<10	<0.19	<10	<50	<50	
MW-1	8/18/2011	<1	1.7	<2	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8		
MW-1	8/19/2019	<1	7	<2	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8		
MW-1	11/19/2019	<1	<1	<2	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8		
MW-10A	8/18/2011	<1	<1	0.51	35	9.5	<48	<9.5	<9.5	<48	<9.5	<9.5	<19	<19	<9.5	<9.5	<19	<19	<19	<19	<19	<19	<19	<19	<9.5	<48	<9.5	<19	<19	<19	<95	<48	<240	<240			
MW-10A	8/19/2019	<1	<1	<2	63	16	<95	<19	<19	<95	<19	<19	<39	<39	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	<95	<48	<19	<19	<19	<95	<48	<95	<480	<480			
MW-10A	11/20/2019	19	480	180	56	<39	<200	<39	<0.19	<0.19	<0.95	<0.19	<39	<39	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<980	<980			
MW-10B	8/17/2011	9.2	280	<40	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-10B	8/16/2019	12	350	<25	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-10B	11/20/2019	13	24	<20	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-10C	8/12/2015	1.4	51	<16	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-10C	8/14/2019	1.2	35	<6.7	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-10C	11/19/2019	<1	<1	<2	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	0.95	<4.8	<4.8	<4.8	<4.8			
MW-11A	8/18/2011	<1	0.55	0.52	0.32	<0.19	<0.95	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-11A	8/16/2019	<1	0.36	<2	<0.19	<0.19	<0.96	<0.19	<0.19	<0.96	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.96	<0.19	<0.19	<0.19	<0.19	<0.96	<0.19	<0.96	<4.8	<4.8			
MW-11A	11/21/2019	<330	<330	1300	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-11B	8/17/2011	99	25	190	<0.19	0.84	<0.95	<0.19	0.28	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-11B	8/15/2019	58	11	24	<0.19	0.28	<0.96	<0.19	0.28	<0.96	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.96	<0.19	<0.19	<0.19	<0.19	<0.96	<0.19	<0.96	<4.8	<4.8			
MW-11B	11/20/2019	13	<6.7	17	<0.19	0.16	<0.97	<0.19	0.16	<0.97	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.97	<0.19	<0.19	<0.19	<0.19	<0.97	<0.19	<0.97	<4.9	<4.9			
MW-11C	8/12/2015	18	<13	530	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-11C	8/14/2019	18	<2	632	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-11C	11/18/2019	NA	NA	NA	<0.19	<0.19	<0.96	<0.19	<0.19	<0.96	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.96	<0.19	<0.19	<0.19	<0.19	<0.96	<0.19	<0.96	<4.8	<4.8			
MW-12	7/25/2011	65	<40	3500	1.6	<0.42	10	<0.42	10	<0.42	0.19	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	1.7	<0.42	<0.42	<0.42	<2.1	<10	<10	<10	<10			
MW-12	8/19/2019	16000	<2000	4800	0.55	0.22	<0.95	<0.19	0.22	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	0.51	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-12	11/21/2019	7.2	<6.3	68	0.43	0.31	5.6	0.2	<0.19	0.31	0.2	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	0.5	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.95	<4.8	<4.8			
MW-13A	8/19/2011	9.5	1.8	84	0.91	2.6	<0.95	3.9	1.7	<0.95	3.9	<0.95	1.2	<0.19	<0.19	<0.19	<0.19	<0.19																			

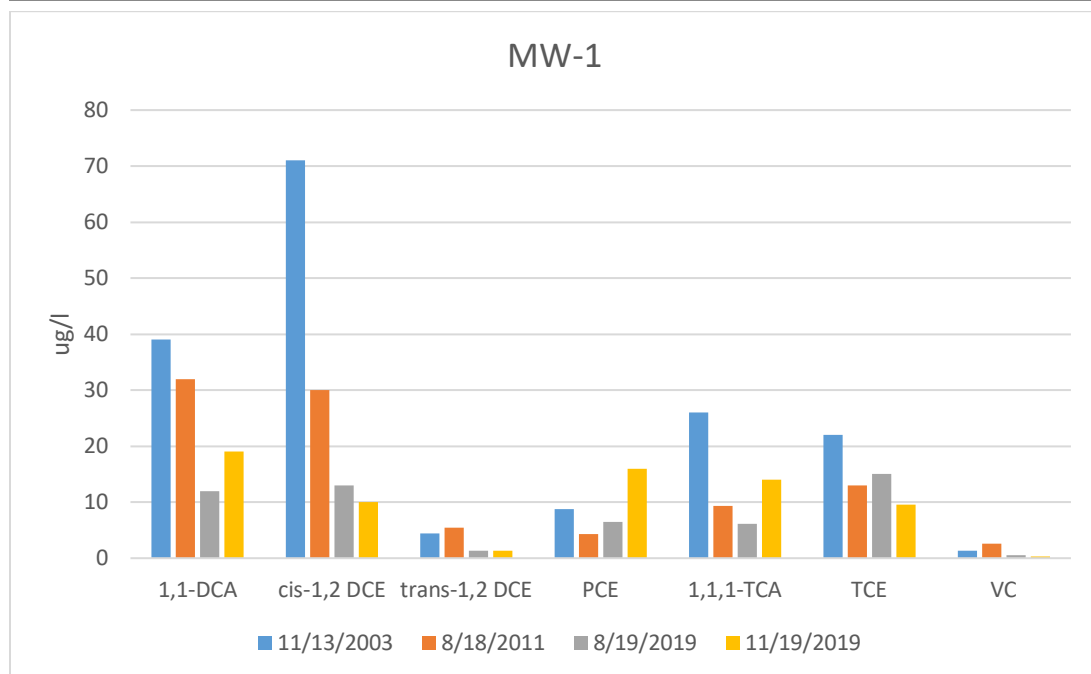
Sample ID	Date	1,4-Dioxane	Benzene	1,1-Dichloroethane	1,2-Dichloroethane	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Ethylbenzene	2-Hexanone	Isopropylbenzene	4-Methyl-2-pentanone	Methylene chloride	Naphthalene	Styrene	Tetrachloroethene	Toluene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane
MW-5	11/14/2003	NA	0.27	10	<1	15	0.95	2.1	<1	<10	NA	<10	0.29	NA	<1	11	3.8	NA	2.9
MW-5	9/23/2010	NA	<1	4.4	<1	2.2	0.24	<1	<1	<10	<1	<10	<1	NA	<1	4.4	<1	<1	0.41
MW-5	8/17/2011	NA	<1	6.7	<1	15	0.91	0.63	<1	<10	<1	<10	<1	<1	<1	5.3	<1	<1	0.96
MW-5	8/15/2019	0.96	<1	8	<1	7.8	0.69	0.61	<1	<10	<1	<10	<5	NA	<1	2.9	<1	<1	0.51
MW-5	8/15/2019	<25	<2	6.78	<2	7.58	<2	<2	<2	<5	<2	<5	<2	<2	<2	3.41	<2	<2	<2
MW-5	11/20/2019	<0.4	<1	3.9	<1	6.5	0.45	0.48	<1	<10	<1	<10	<5	NA	<1	3.4	<1	<1	0.6
MW-6	11/14/2003	NA	2300	4000	<2500	76000	<1200	1800	870	<25000	NA	7500	33000	NA	1600	<2500	20000	NA	23000
MW-6	8/19/2011	NA	<2500	6200	<2500	81000	<2500	1700	990	<25000	<2500	2100	9000	8600	380	<2500	16000	<2500	23000
MW-6	8/16/2019	<2	<2500	2900	<2500	60000	<2500	1400	530	<25000	<2500	<25000	<13000	NA	<2500	<2500	6600	<2500	11000
MW-6	8/16/2019	<25	259	1150	13.5	44900	<100	2600	1020	45.6	15.7	395	2320	8330/7840	250	5.78	6210	<2	8600
MW-6	11/21/2019	<2	170	3300	<1300	64000	<1300	1200	860	<13000	<1300	990	<6300	NA	<1300	<1300	4500	<1300	14000
MW-6RA	7/28/2011	NA	5800	460	<560	11000	<560	<560	1100	700	<560	4800	<560	4400	<560	<560	19000	<560	410
MW-6RB	8/18/2011	NA	4500	<2500	<2500	49000	<2500	1300	3100	<25000	<2500	<25000	<2500	<6000	1400	<2500	75000	<2500	19000
MW-6RB	8/20/2019	<200	3500	900	<2500	61000	<2500	1900	1300	<25000	<2500	<25000	<13000	NA	2000	<2500	57000	<2500	19000
MW-6RB	11/21/2019	31	3500	1100	<2000	66000	<2000	1700	2000	<20000	<2000	<20000	<10000	NA	700	<2000	61000	<2000	17000
MW-6RC	8/19/2011	NA	160	800	<330	9100	<330	690	570	<3300	<330	<3300	<330	5200	440	<330	9600	<330	5800
MW-6RC	8/20/2019	5.4	45	430	<170	4600	<170	470	290	<1700	110	<1700	<830	NA	170	<170	5800	<170	4900
MW-6RC	11/21/2019	<2	56	820	<200	6200	<200	570	560	<2000	<200	<2000	<1000	NA	66	<200	12000	<200	5700
MW-7A	8/19/2011	NA	49000	1300	<3300	70000	<3300	770	1500	<33000	<3300	9000	<3300	5300	1700	<3300	92000	<3300	7300
MW-7A	8/16/2019	<200	30000	1000	<2500	56000	<2500	640	780	<25000	<2500	4600	<13000	NA	840	<2500	72000	<2500	3900
MW-7A	8/16/2019	<25	30200	1100	850 / <400	51200	108 / <400	702	1490	933 / <1000	7.36	7470	9.68	7530	1700	121 / <400	59400	<2500	3860
MW-7A	11/21/2019	14	36000	1200	<1000	58000	<1000	400	1100	540	<1000	6600	<5000	NA	1500	<1000	53000	<1000	3200
MW-7D	11/13/2003	NA	4.3	0.52	<1	8.3	<0.5	<1	0.7	<10	NA	<10	<1	NA	<1	<1	<1	NA	<1
MW-7D	8/18/2011	NA	4.4	0.69	<1	11	<1	<1	0.18	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1
MW-7D	8/15/2019	<2	5.4	0.8	<1	17	<1	<1	0.15	<10	<1	<10	<5	NA	<1	<1	0.22	<1	<1
MW-7D	11/18/2019	<2	5.2	0.77	<1	17	0.22	<1	0.13	<10	<1	<10	<5	NA	<1	<1	<1	<1	<1
MW-8D	11/13/2003	NA	22	12	<2.5	70	2.9	<2.5	3.4	<25	NA	<25	<2.5	NA	<2.5	<2.5	2.4	NA	<2.5
MW-8D	8/18/2011	NA	12	3.2	<2	50	0.43	<2	1.1	<20	<2	<20	<2	<2	<2	<2	<2	<2	<2
MW-8D	8/15/2019	<2	12	1.7	<1.7	43	0.33	<1.7	0.58	<17	<1.7	<17	<8.4	NA	<1.7	<1.7	<1.7	<1.7	<1.7
MW-8D	11/20/2019	<0.4	11	1.7	<1	44	0.37	<0.19	0.59	<10	<1	<10	<5	NA	<1	<1	<1	<1	<1
MW-9D	11/13/2003	NA	<1	<1	<1	0.92	<0.5	<1	0.31	<10	NA	<10	<1	NA	<1	<1	0.27	NA	<1
MW-9D	8/17/2011	NA	0.5	<1	<1	2	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1
MW-9D	8/15/2019	<2	0.44	0.18	<1	1.7	<1	<1	<1	<10	<1	<10	<5	NA	<1	<1	<1	<1	<1
MW-9D	11/19/2019	<0.4	0.47	<1	<1	1.2	<1	<1	<1	<10	<1	<10	<5	NA	<1	<1	<1	<1	<1

Sample ID	Date	Trichloroethene	Vinyl chloride	Xylenes (total)	Acenaphthene	Acenaphthylene	Acetophenone	Anthracene	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[g,h,i]perylene	Benzo[k]fluoranthene	1,1'-Biphenyl	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	2,4-Dinitrotoluene
MW-5	11/14/2003	33	18	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	9/23/2010	3.3	0.45	<2	<0.19	<0.19	<0.96	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.96	<0.19	<0.19	<0.96	<4.8
MW-5	8/17/2011	17	3.8	<2	<0.19	<0.19	<0.97	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.97	<0.19	<0.19	<0.97	<4.9
MW-5	8/15/2019	11	2	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	8/15/2019	9.96	2.64	<4	<0.2	<0.2	<0.98	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.98	<0.2	<0.2	<0.98	<4.9
MW-5	11/20/2019	11	1.7	<2	<2000	490	NA	<2000	<2000	<2000	<2000	<2000	<2000	NA	<2000	<2000	<2000	<1000
MW-6	11/14/2003	20000	<2500	3100	<38	82	<190	<38	<38	<38	<38	<38	<38	<190	<38	<38	<190	<960
MW-6	8/19/2011	9300	<2500	3400	<24	100	<120	<24	<24	<24	<24	<24	<24	<120	<24	<24	<120	<600
MW-6	8/16/2019	<2500	<2500	1200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	8/16/2019	41.2	171	2641	<40	130	<200	32	<40	<40	<40	<40	<40	<200	<40	<40	<200	<990
MW-6	11/21/2019	270	<1300	2100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6RA	7/28/2011	100	<560	4700	<38	210	<190	<38	<38	<38	<38	<38	<38	<190	<38	<38	<190	<950
MW-6RB	8/18/2011	<2500	<2500	6100	45	190	<190	<38	<38	<38	<38	<38	<38	<190	<38	<38	<190	<950
MW-6RB	8/20/2019	<2500	<2500	4400	46	150	<95	32	<19	<19	<19	<19	<19	58	<19	<19	<95	<480
MW-6RB	11/21/2019	220	<2000	2800	<38	<38	<190	<38	<38	<38	<38	<38	<38	<190	<38	<38	<190	<950
MW-6RC	8/19/2011	<330	200	2300	<21	15	<110	<21	<21	<21	<21	<21	<21	<110	<21	<21	<110	<530
MW-6RC	8/20/2019	28	450	970	<19	13	<95	<19	<19	<19	<19	<19	<19	<95	<19	<19	<95	<480
MW-6RC	11/21/2019	33	510	1900	<24	150	<120	67	44	44	28	25	<24	<120	36	<24	<120	<610
MW-7A	8/19/2011	45000	<3300	3800	<21	74	<110	40	27	27	20	<21	<21	<110	26	<21	<110	<530
MW-7A	8/16/2019	1200	<2500	2200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-7A	8/16/2019	1160	474	4400	<42	380	<210	250	<42	230	140	120	57	170	<42	<42	<210	<1100
MW-7A	11/21/2019	1600	540	3100	<10	<50	NA	<10	<10	<10	<10	<10	<10	NA	<10	<10	<50	<50
MW-7D	11/13/2003	0.32	1.4	0.95	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<4.8
MW-7D	8/18/2011	0.51	1.1	<2	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<4.8
MW-7D	8/15/2019	1	1.3	<2	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<4.8
MW-7D	11/18/2019	1	1	<2	<10	<50	NA	<10	<10	<10	<10	<10	<10	NA	<10	<10	<10	<50
MW-8D	11/13/2003	1.5	12	4.5	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<4.8
MW-8D	8/18/2011	1.4	6.4	<4	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.19	<0.19	<0.95	<4.8
MW-8D	8/15/2019	1.1	5.4	0.43	<0.19	<0.19	<0.97	<0.19	<0.19	<0.19	<0.19	<0.19	<0.19	<0.97	<0.19	<0.19	<0.97	<4.9
MW-8D	11/20/2019	1.8	5.7	0.19	<10	<50	NA	<10	<10	<10	<10	<10	<10	NA	<10	<10	<10	<50
MW-9D	11/13/2003	0.28	0.5	0.94	<10	<50	NA	<10	<10	<10	<10	<10	NA	<10	<10	<10	<10	<50
MW-9D	8/17/2011	<1	<1	<2	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.95	<0.19	<0.95	<4.8	<4.8
MW-9D	8/15/2019	<1	<1	<2	<0.19	<0.19	<0.96	<0.19	<0.19	<0.19	<0.19	<0.919	<0.96	<0.96	<0.19	<0.96	<4.8	<4.8
MW-9D	11/19/2019	<1	<1	<2	<0.19	<0.19	<0.95	<0.19	<0.19	<0.19	<0.19	<0.19	<0.95	<0.95	<0.19	<0.95	<4.8	<4.8

Sample ID	Date	2,6-Dinitrotoluene	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	Indeno[1,2,3-cd]pyrene	Isophorone	2-Methylnaphthalene	2-Methylphenol	3 & 4 Methylphenol	Naphthalene	2-Nitroaniline	3-Nitroaniline	4-Nitroaniline	Nitrobenzene
MW-5	11/14/2003	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-5	9/23/2010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	8/17/2011	<4.8	<0.19	<0.19	<0.19	<0.96	<9.6	<0.96	<0.19	<0.96	<0.19	<0.96	<1.9	<0.19	<1.9	<1.9	<1.9	<0.96
MW-5	8/15/2019	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	8/15/2019	<4.9	<0.2	<0.2	<0.2	<0.98	<9.8	<0.98	<0.2	<0.98	<0.2	<0.98	<2	<0.2	<2	<2	<2	<0.98
MW-5	11/20/2019	<1000	<2000	540	<2000	<2000	<2000	<2000	<10000	1500	<2000	<2000	370	9600	<2000	<2000	<2000	<2000
MW-6	11/14/2003	<960	<38	<38	<38	<190	<1900	<190	<38	650	360	<190	<380	6300	<380	<380	<380	<190
MW-6	8/19/2011	<600	<24	47	<24	<120	<1200	<120	<24	180	410	<120	<240	4600	<240	<240	<240	<120
MW-6	8/16/2019	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6	8/16/2019	<990	58	78	<40	<200	<2000	<200	<40	650	450	<200	<400	5600	<400	<400	<400	<200
MW-6	11/21/2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-6R	7/28/2011	<950	<38	51	<38	<190	<1900	<190	<38	<190	610	<190	<380	7200	<380	<380	<380	<190
MW-6R	8/18/2011	<950	<38	54	<38	<190	<1900	<190	<38	<190	480	130	100	5800	<380	<380	<380	<190
MW-6R	8/20/2019	<480	39	61	<19	<95	<950	<95	<19	42	380	240	200	5000	<190	<190	<190	<95
MW-6R	11/21/2019	<950	<38	<38	<38	<190	<1900	<190	<38	<190	200	<190	<380	4600	<380	<380	<380	<190
MW-6R	8/19/2011	<530	<21	18	<21	<110	<1100	<110	<21	<110	230	<110	21	2900	<210	<210	<210	<110
MW-6R	8/20/2019	<480	<19	22	<19	<95	<950	<95	<19	<95	250	<95	<190	4800	<190	<190	<190	<95
MW-6R	11/21/2019	<610	110	81	<24	<120	<1200	<120	17	35	390	<120	<240	5100	<240	<240	<240	<120
MW-7A	8/19/2011	<530	70	37	<21	<110	<1100	<110	<21	<110	170	<110	<210	2900	<210	<210	<210	<110
MW-7A	8/16/2019	NA	NA	NA	NA	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-7A	8/16/2019	<1100	510	260	<42	<210	<2100	<210	84	<210	720	<210	<420	9300	<420	<420	<420	<210
MW-7A	11/21/2019	<50	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
MW-7D	11/13/2003	<4.8	<0.19	<0.19	<0.19	<0.95	<9.5	<0.95	<0.19	<0.95	<0.19	<0.95	<1.9	<0.19	<1.9	<1.9	<1.9	<0.95
MW-7D	8/16/2011	<4.8	<0.19	<0.19	<0.19	<0.95	<9.5	<0.95	<0.19	<0.95	<0.19	<0.95	<1.9	0.23	<1.9	<1.9	<1.9	<0.95
MW-7D	8/15/2019	<4.8	<0.19	<0.19	<0.19	<0.95	<9.5	<0.95	<0.19	<0.95	<0.19	<0.95	<1.9	0.2	<1.9	<1.9	<1.9	<0.95
MW-7D	11/18/2019	<50	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<10	5.2	<10	<10	<50	<10
MW-8D	11/13/2003	<4.8	<0.19	<0.19	<0.19	<0.95	<9.5	<0.95	<0.19	<0.95	<0.19	<0.95	<1.9	<0.19	<1.9	<1.9	<1.9	<0.95
MW-8D	8/16/2011	<4.8	<0.19	<0.19	<0.19	<0.95	<9.5	<0.95	<0.19	<0.95	<0.19	<0.95	<1.9	0.13	<1.9	<1.9	<1.9	<0.95
MW-8D	8/15/2019	<4.9	<0.19	<0.19	<0.19	<0.97	<9.7	<0.97	<0.19	<0.97	<0.19	<0.97	<0.19	<0.19	<1.9	<1.9	<1.9	<0.97
MW-8D	11/20/2019	<50	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50	<10
MW-9D	11/13/2003	<10	<10	<10	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50	<10	<10
MW-9D	8/17/2011	<0.19	<0.19	<0.19	<0.95	<9.5	<0.95	<0.19	<0.95	<0.19	<0.95	<1.9	<0.19	<1.9	<1.9	<1.9	<0.95	<1.9
MW-9D	8/15/2019	<0.19	<0.19	<0.19	<0.96	<9.6	<0.96	<0.19	<0.96	<0.19	<0.96	<1.9	<0.19	<1.9	<1.9	<1.9	<0.96	<1.9
MW-9D	11/19/2019	<0.19	<0.19	<0.19	<0.95	<9.5	<0.95	<0.19	<0.95	<0.19	<0.95	<1.9	<0.19	<1.9	<1.9	<1.9	<0.95	<1.9

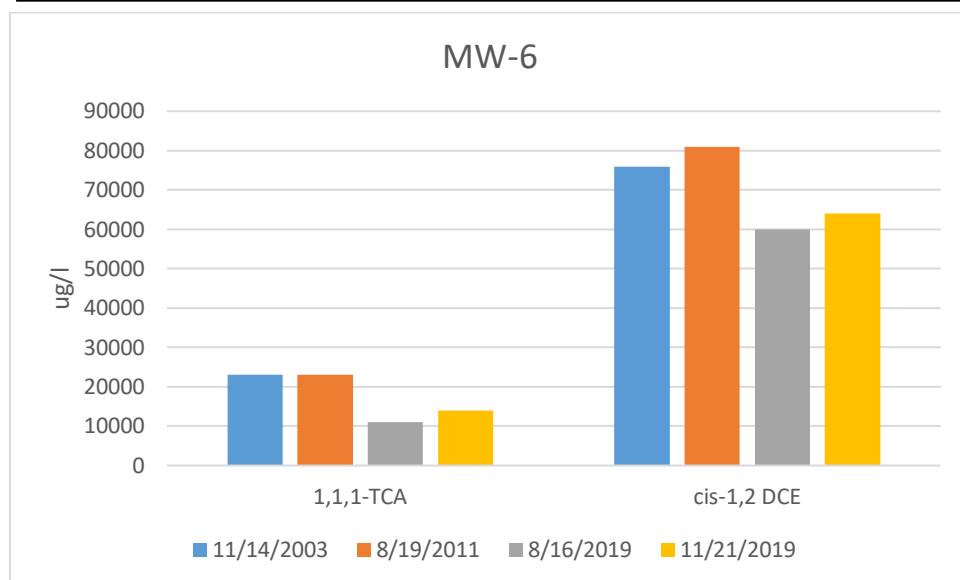
Sample ID	Date	2-Nitrophenol	4-Nitrophenol	N-Nitrosodi-n-propylamine	N-Nitrosodiphenylamine	2,2-Oxybis(1-chloropropane)	Pentachlorophenol	Phenanthrene	Phenol	Pyrene	1,2,4-Trichlorobenzene
MMW-5	11/14/2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MMW-5	9/23/2010	<1.9	<4.8	<0.96	<0.96	NA	<4.8	<0.19	<0.96	<0.19	NA
MMW-5	8/17/2011	<1.9	<9.7	<0.97	<0.97	NA	<9.7	<0.19	<0.97	<0.19	NA
MMW-5	8/15/2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MMW-5	8/15/2019	<2	<9.8	<0.98	<0.98	NA	<9.8	<0.2	<0.98	<0.2	NA
MMW-5	11/20/2019	<2000	<2000	<2000	<2000	<2000	<2000	400	<2000	<2000	<2000
MMW-6	11/14/2003	<380	<960	<190	<190	NA	<960	<38	<190	<38	NA
MMW-6	8/19/2011	<240	<1200	<120	<120	NA	<1200	85	<120	<24	NA
MMW-6	8/16/2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MMW-6	8/16/2019	<400	<2000	<200	<200	NA	<2000	160	<200	79	NA
MMW-6	11/21/2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MMW-6RA	7/28/2011	<380	<950	<190	<190	NA	<950	<38	<190	<38	NA
MMW-6RB	8/18/2011	<380	<1900	<190	<190	NA	<1900	100	<190	50	NA
MMW-6RB	8/20/2019	<190	<950	<95	<95	NA	<950	140	<95	78	NA
MMW-6RB	11/21/2019	<380	<950	<190	<190	NA	<950	<38	<190	<38	NA
MMW-6RC	8/19/2011	<210	<1100	<110	<110	NA	<1100	27	<110	<21	NA
MMW-6RC	8/20/2019	<190	<950	<95	<95	NA	<950	35	<95	<19	NA
MMW-6RC	11/21/2019	<240	<610	<120	<120	NA	<610	290	<120	150	NA
MMW-7A	8/19/2011	<210	<1100	<110	<110	NA	<1100	170	<110	99	NA
MMW-7A	8/16/2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MMW-7A	8/16/2019	<420	<2100	<210	<210	NA	<2100	1100	<210	670	NA
MMW-7A	11/21/2019	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
MMW-7D	11/13/2003	<1.9	<4.8	<0.95	<0.95	NA	<4.8	<0.19	<0.95	<0.19	NA
MMW-7D	8/18/2011	<1.9	<9.5	<0.95	<0.95	NA	<9.5	<0.19	<0.95	<0.19	NA
MMW-7D	8/15/2019	<1.9	<9.5	<0.95	<0.95	NA	<9.5	0.19	<0.95	<0.19	NA
MMW-7D	11/18/2019	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
MMW-8D	11/13/2003	<1.9	<4.8	<0.95	<0.95	NA	<4.8	<0.19	<0.95	<0.19	NA
MMW-8D	8/18/2011	<1.9	<9.5	<0.95	<0.95	NA	<9.5	<0.19	<0.95	<0.19	NA
MMW-8D	8/15/2019	<1.9	<9.7	<0.97	<0.97	NA	<9.7	<0.19	<0.97	<0.19	NA
MMW-8D	11/20/2019	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
MMW-9D	11/13/2003	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
MMW-9D	8/17/2011	<4.8	<0.95	<0.95	NA	<4.8	<0.19	<0.95	<0.19	NA	<4.8
MMW-9D	8/15/2019	<9.6	<0.96	<0.96	NA	<9.6	<0.19	<0.96	<0.19	NA	<4.8
MMW-9D	11/19/2019	<9.5	<0.95	<0.95	NA	<9.5	<0.19	<0.95	<0.19	NA	<4.8

MW-1 – Distal plume northern sidegradient boundary, upper bedrock

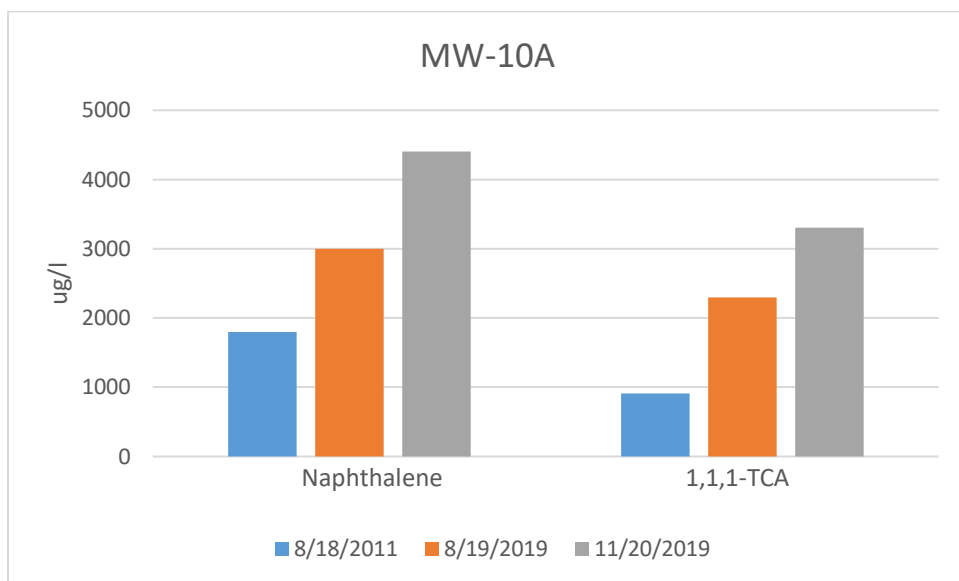
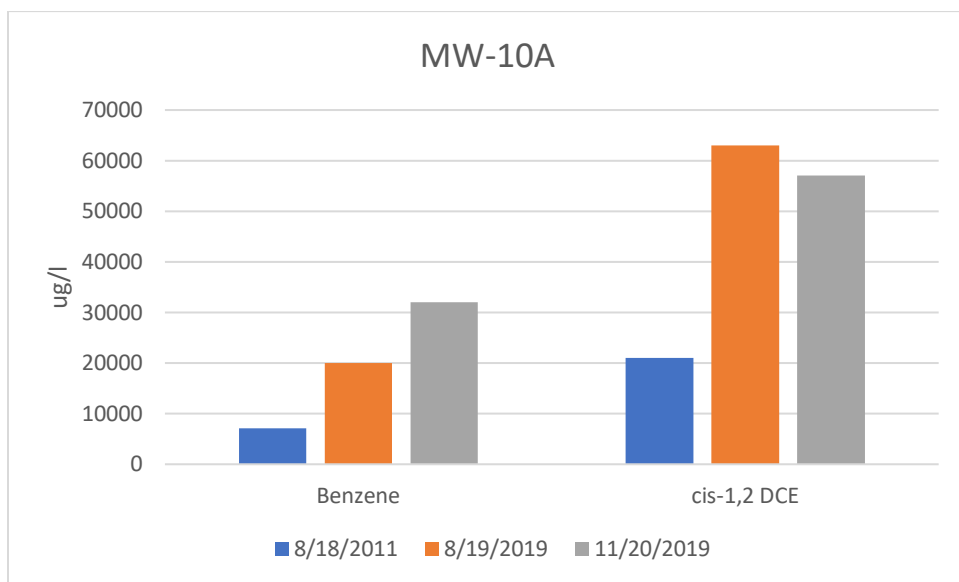


MW-1	1,1-DCA	cis-1,2 DCE	trans-1,2 DCE	PCE	1,1,1-TCA	TCE	VC
11/13/2003	39	71	4.4	8.8	26	22	1.3
8/18/2011	32	30	5.5	4.3	9.3	13	2.6
8/19/2019	12	13	1.3	6.5	6.1	15	0.59
11/19/2019	19	10	1.3	16	14	9.6	0.36

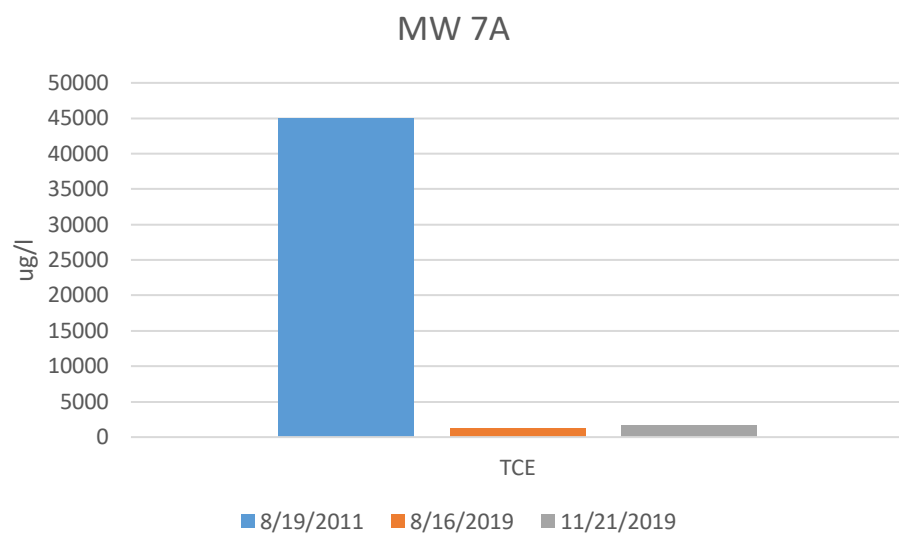
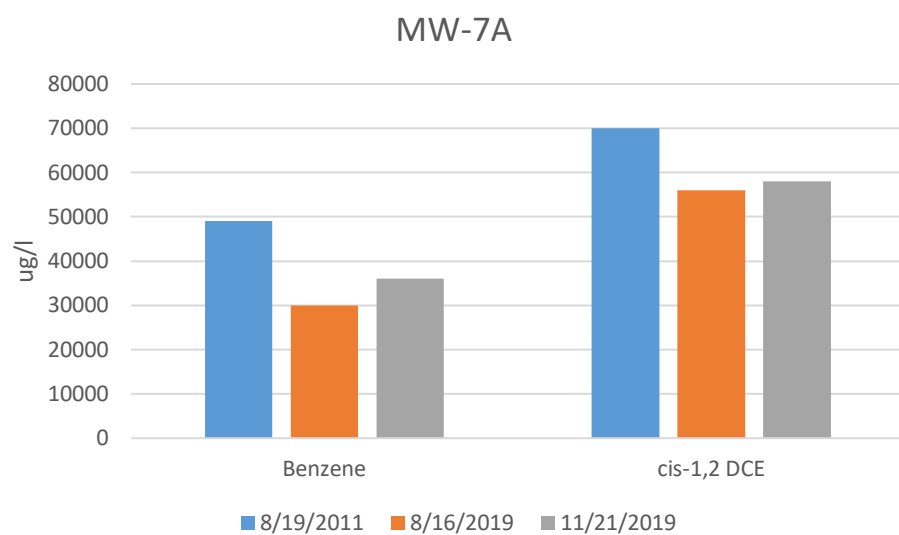
MW-6 Eastern (upgradient) plume core

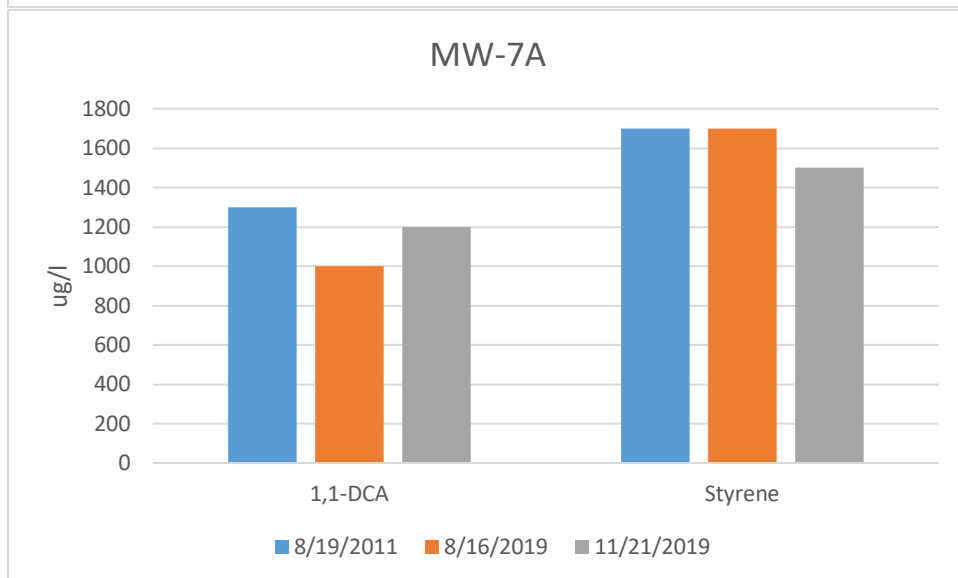
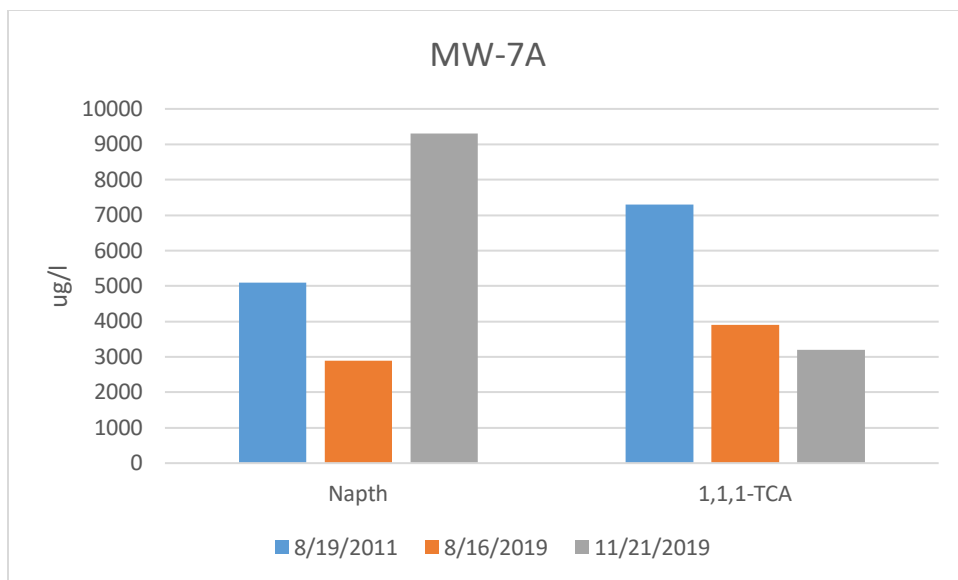


MW-10A Downgradient plume core, upper bedrock

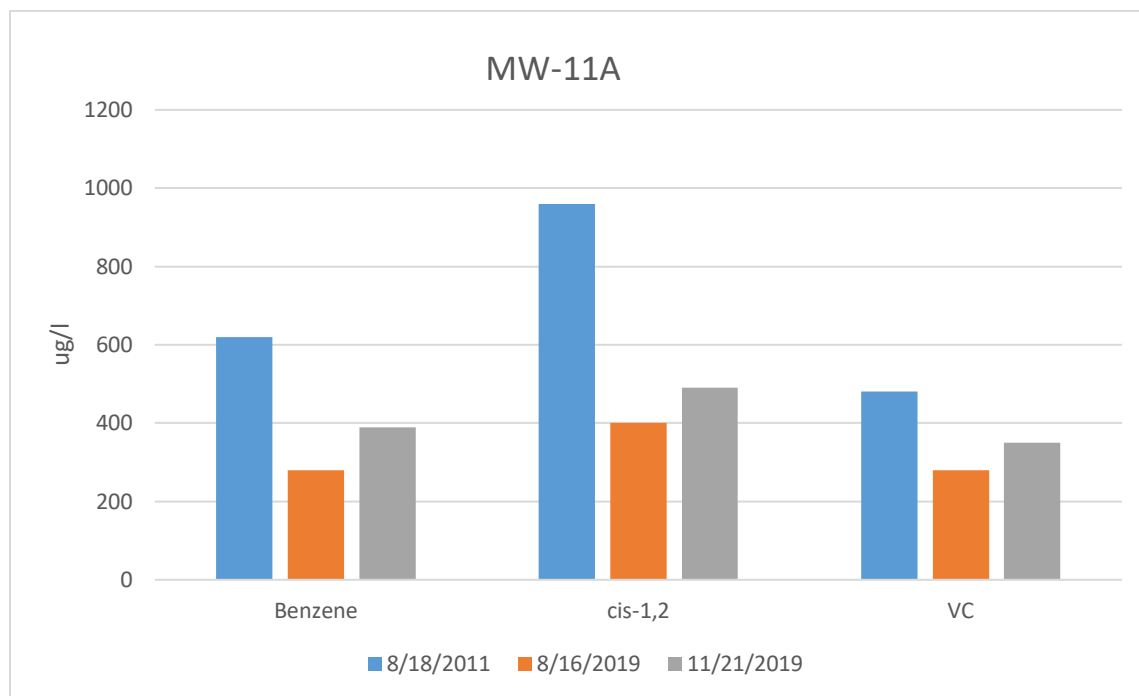


MW-7A Southern plume core shallow bedrock near MGP

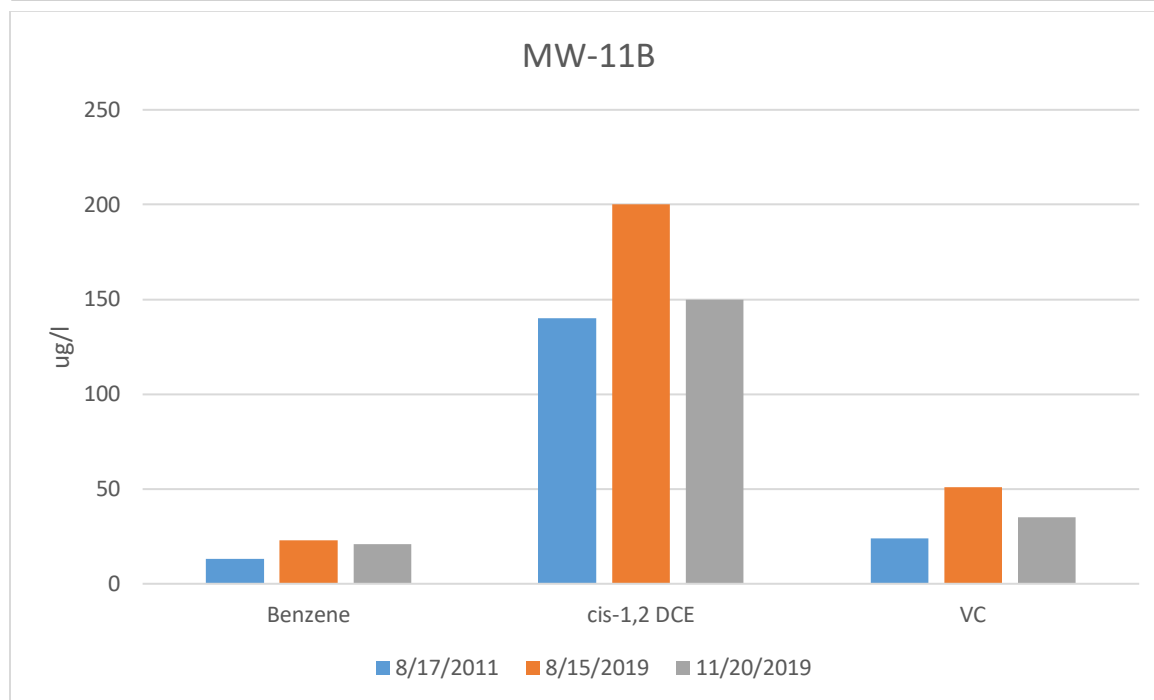




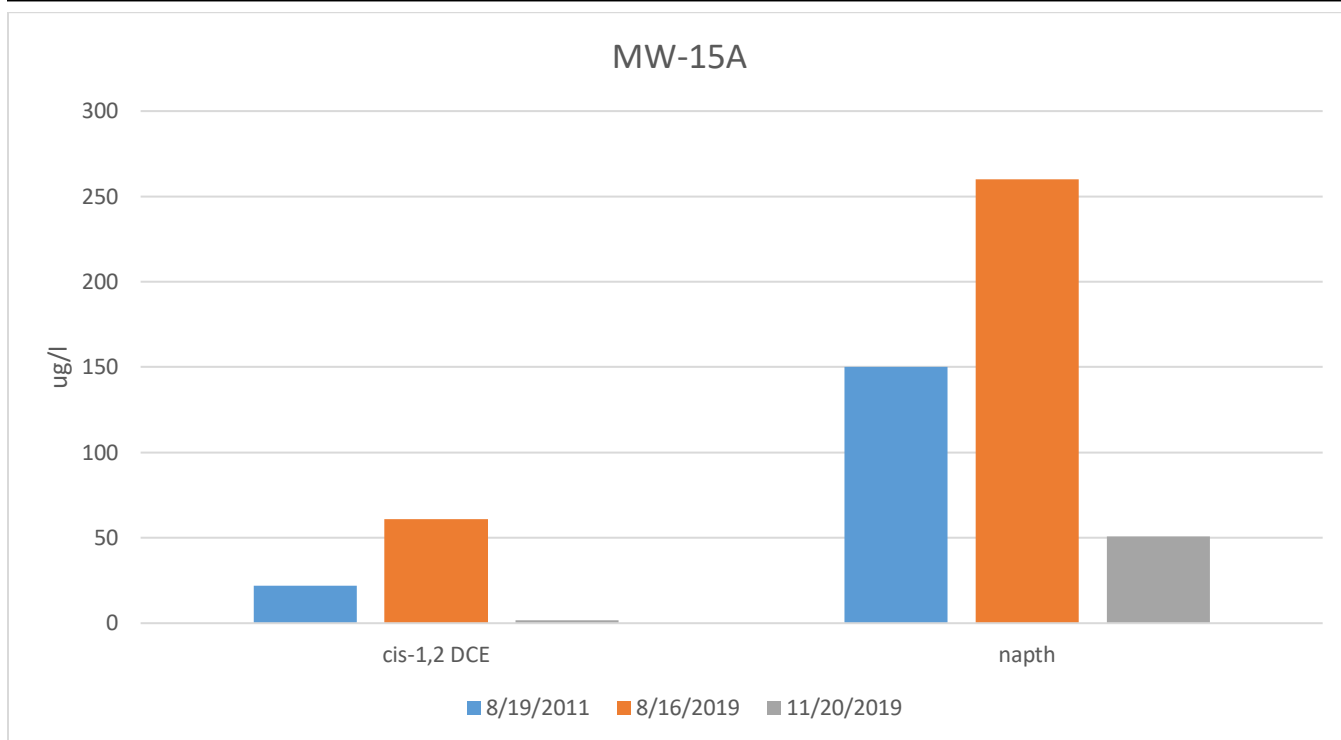
MW-11A, Northern sidegradient upper bedrock.



MW-11B Northern sidegradient lower bedrock



MW-15A Southern plume boundary side gradient upper bedrock



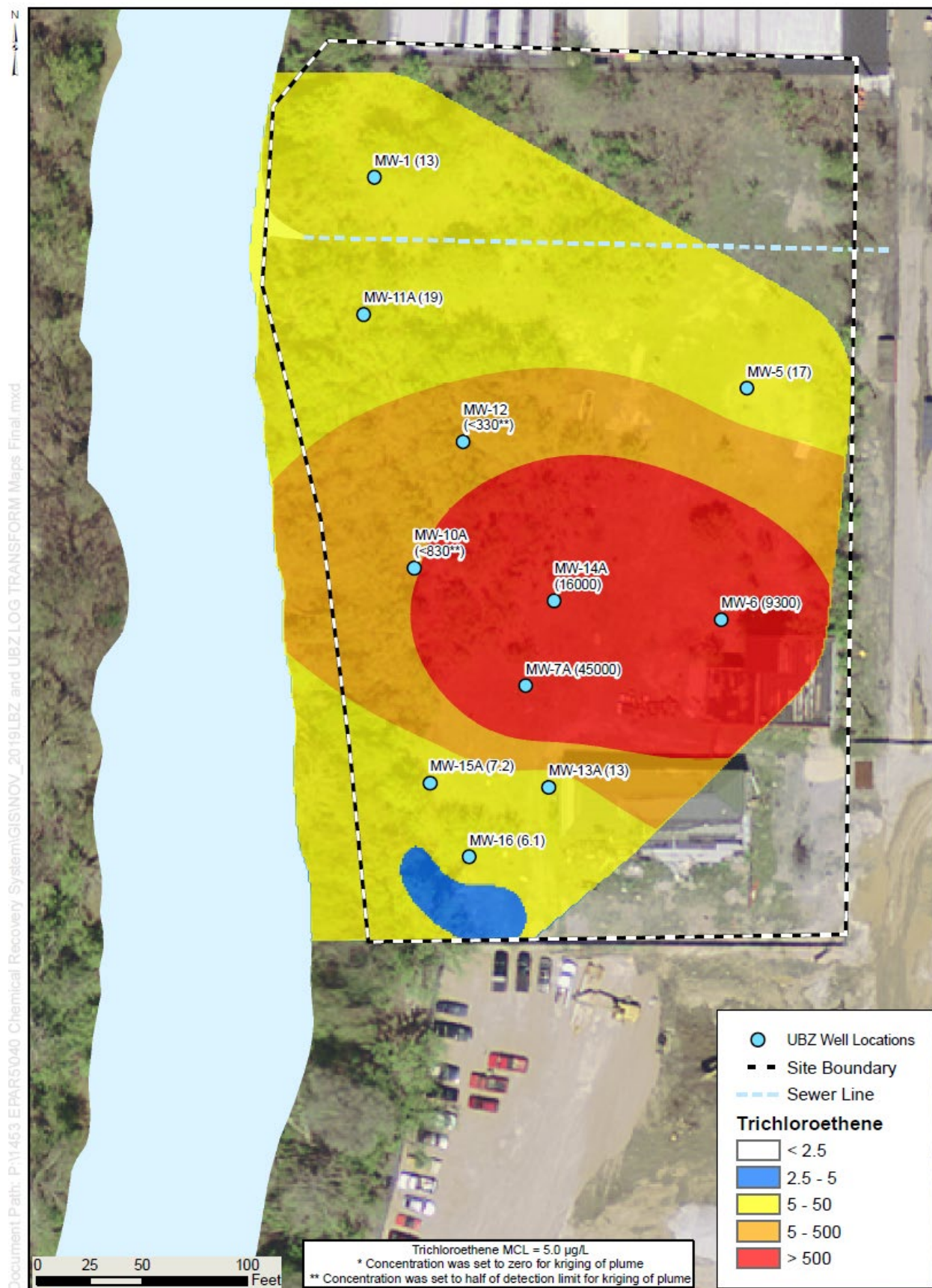


Figure B31 2011 Trichloroethene Concentrations (µg/L), Upper Bedrock Zone

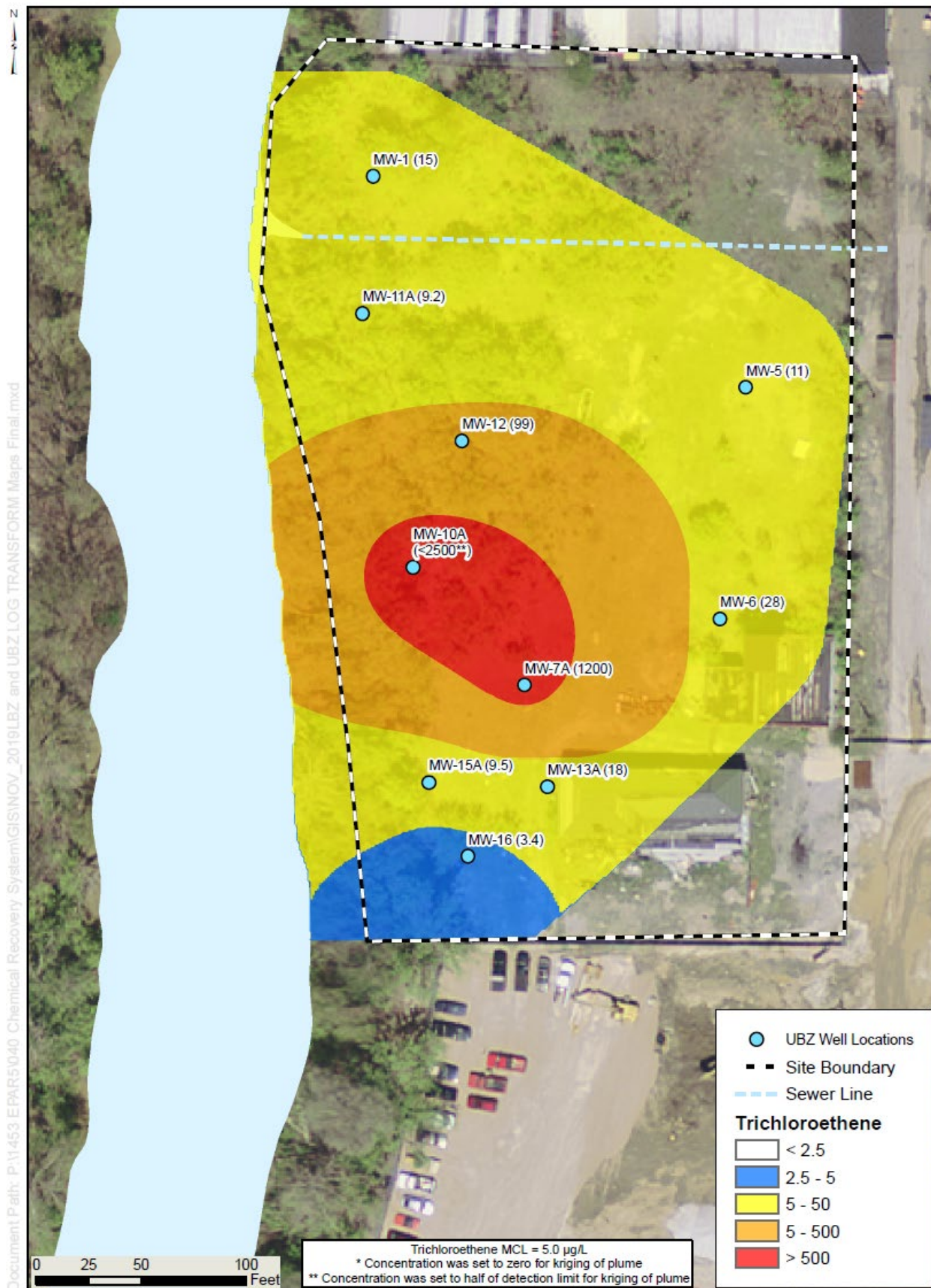


Figure B32 2019 Trichloroethene Concentrations (µg/L), Upper Bedrock Zone

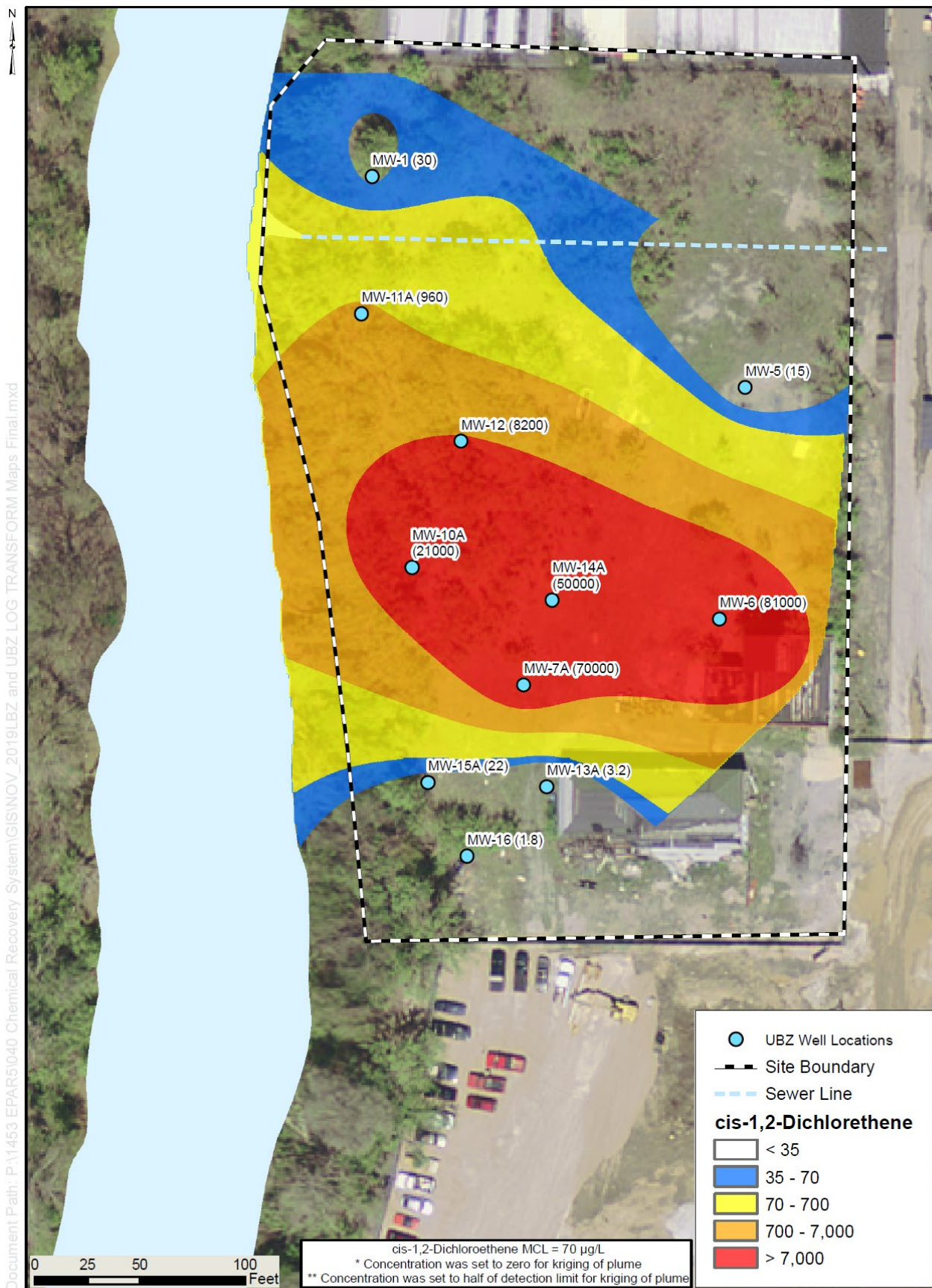


Figure B35 2011 cis-1,2-Dichloroethene Concentrations (µg/L), Upper Bedrock Zone

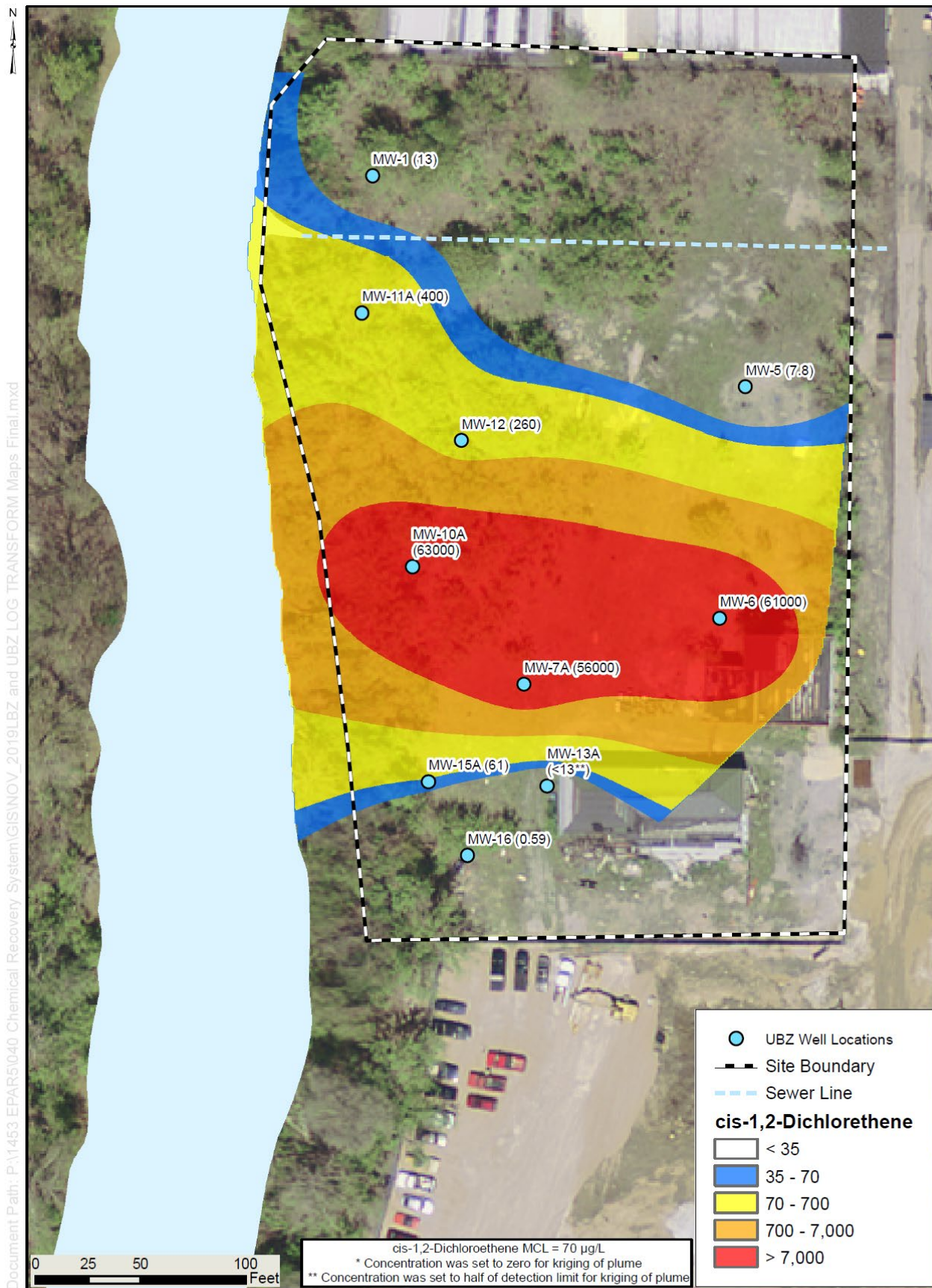


Figure B36 2019 cis-1,2-Dichloroethene Concentrations (µg/L), Upper Bedrock Zone

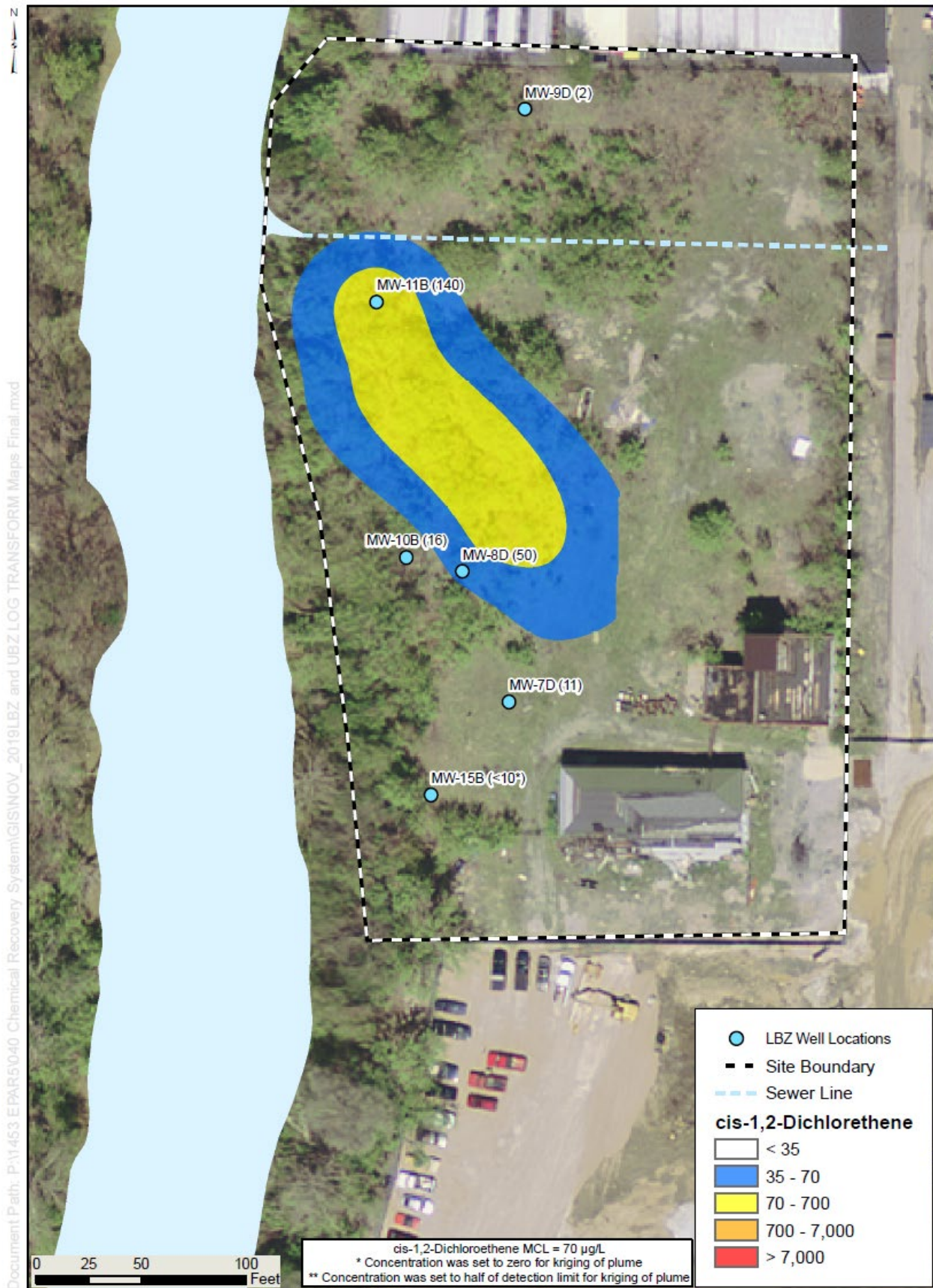


Figure B37 2011 cis-1,2-Dichloroethene Concentrations (µg/L), Lower Bedrock Zone



Figure B38 2019 cis-1,2-Dichloroethene Concentrations (µg/L), Lower Bedrock Zone

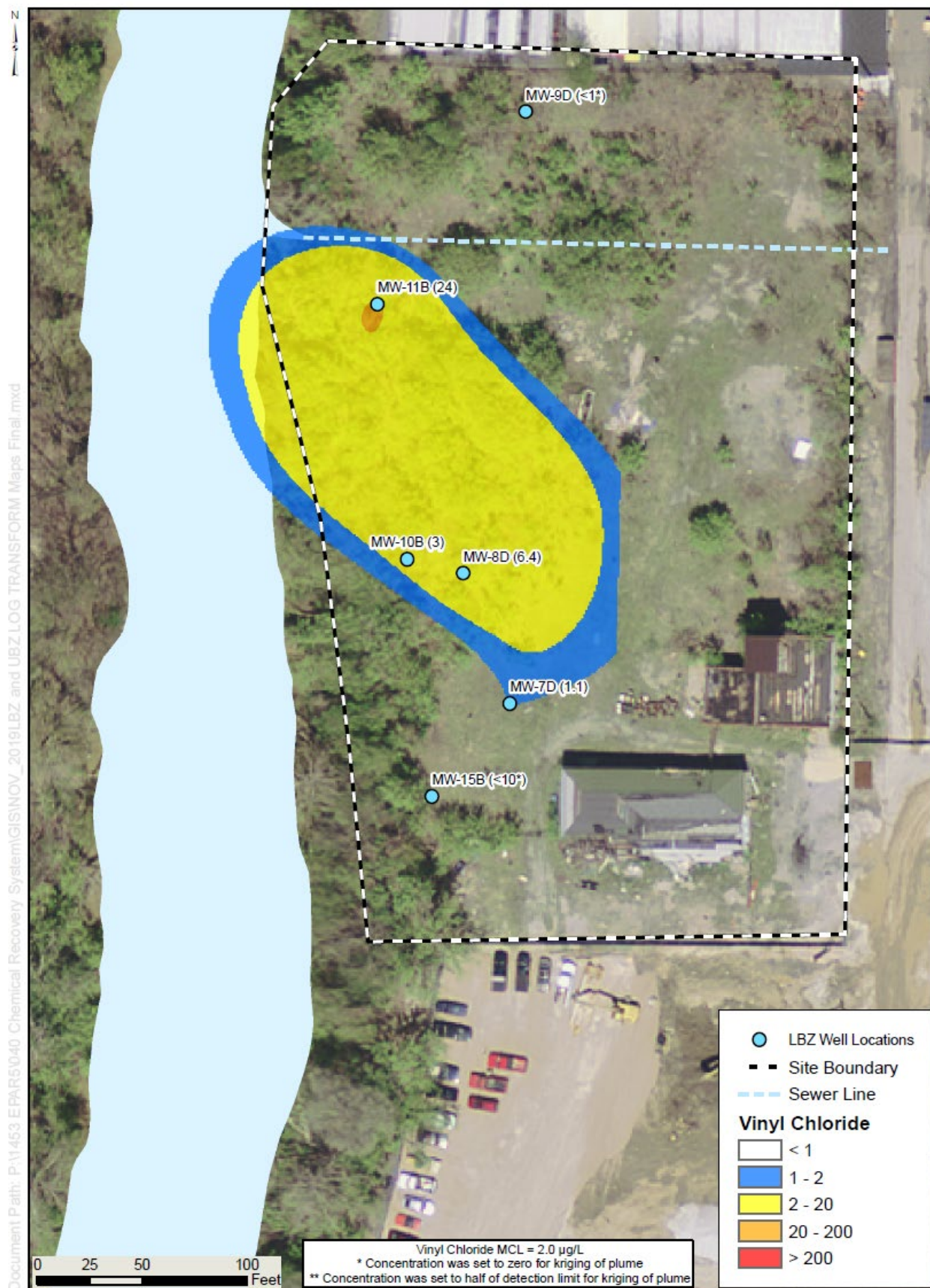


Figure B49 2011 Vinyl chloride Concentrations (µg/L), Lower Bedrock Zone



Figure B50 2019 Vinyl chloride Concentrations (µg/L), Lower Bedrock Zone

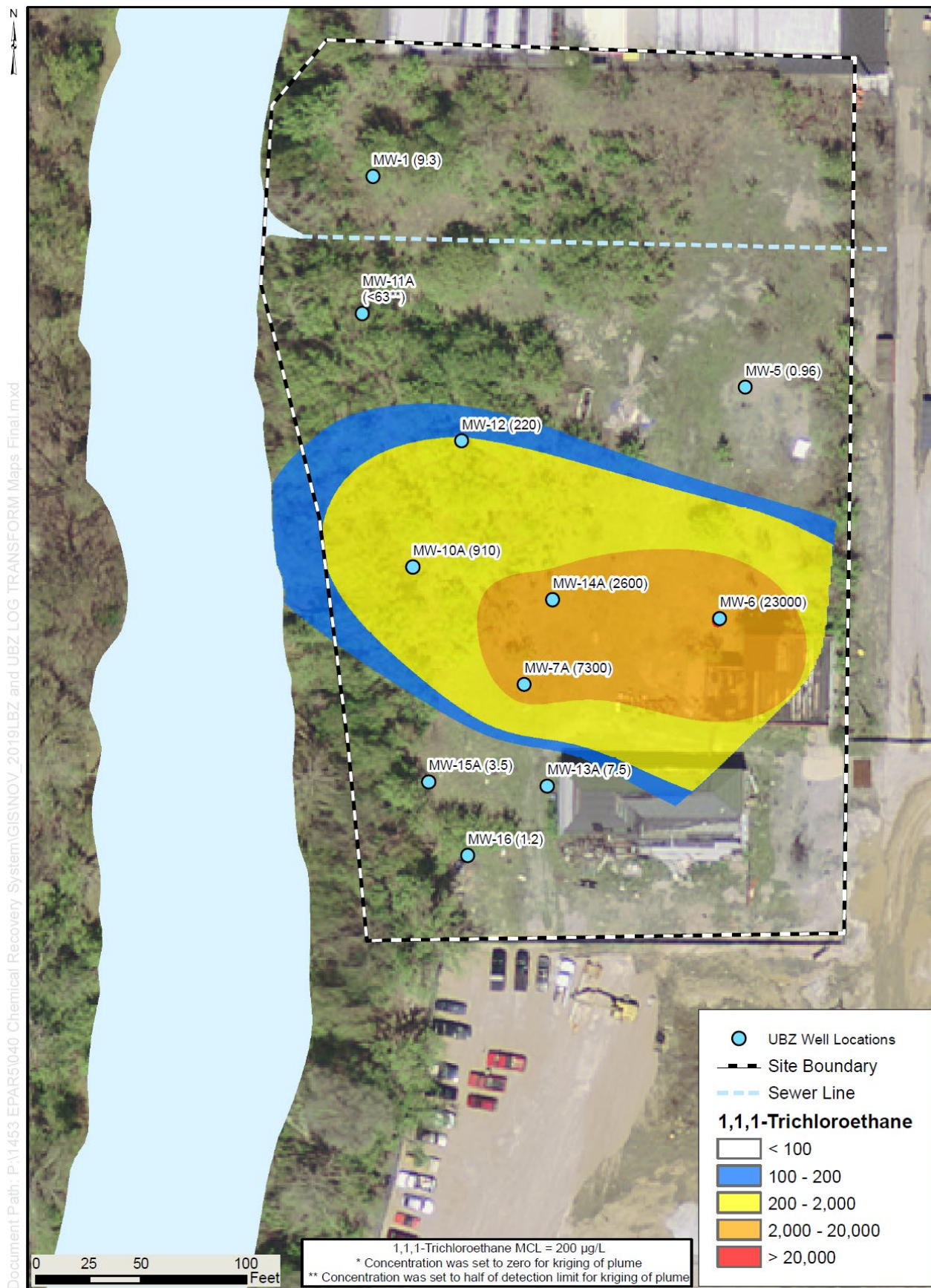


Figure B43 2011 1,1,1-Trichloroethane Concentrations (µg/L), Upper Bedrock Zone

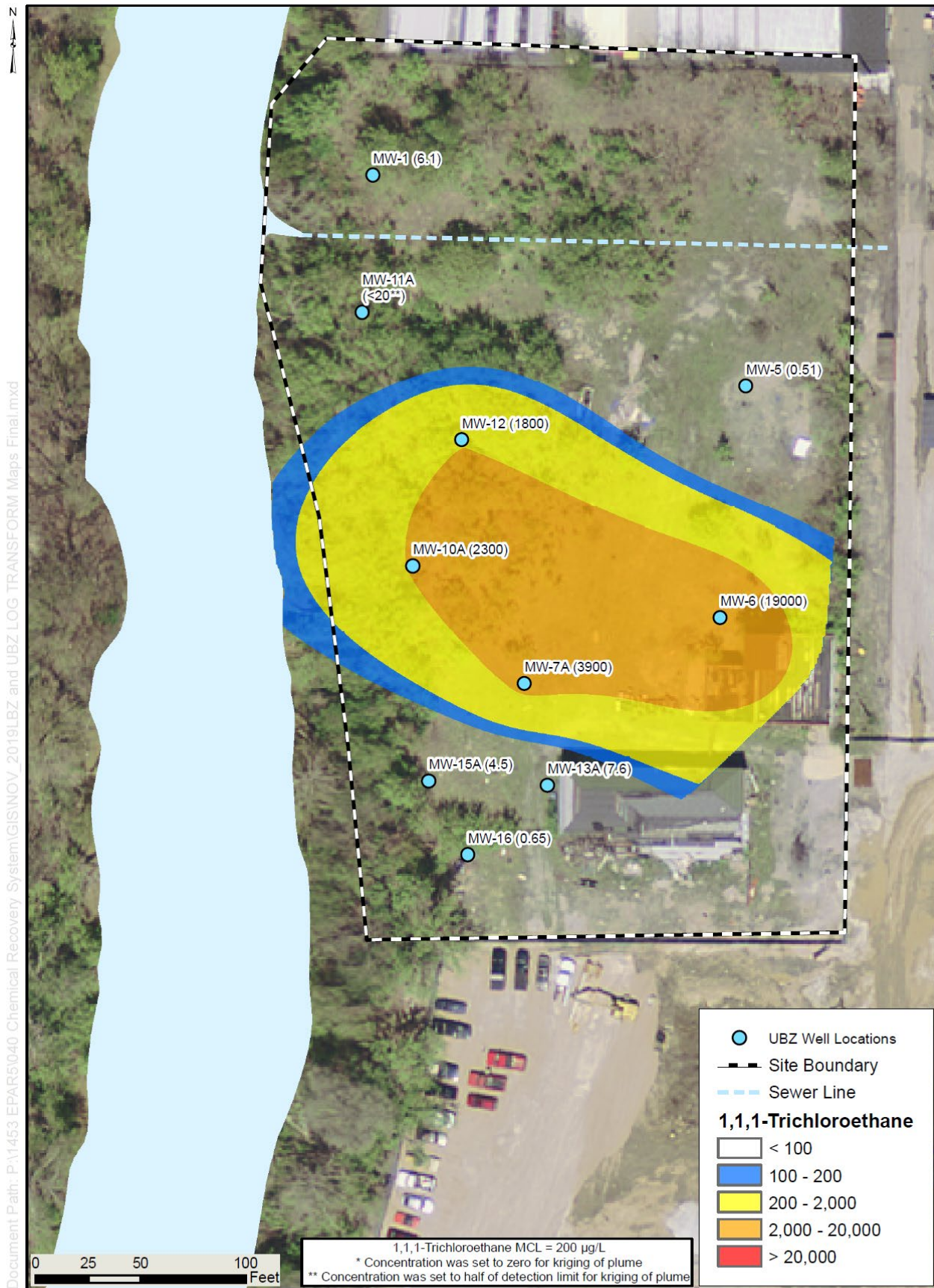


Figure B44 2019 1,1,1-Trichloroethane Concentrations (µg/L), Upper Bedrock Zone

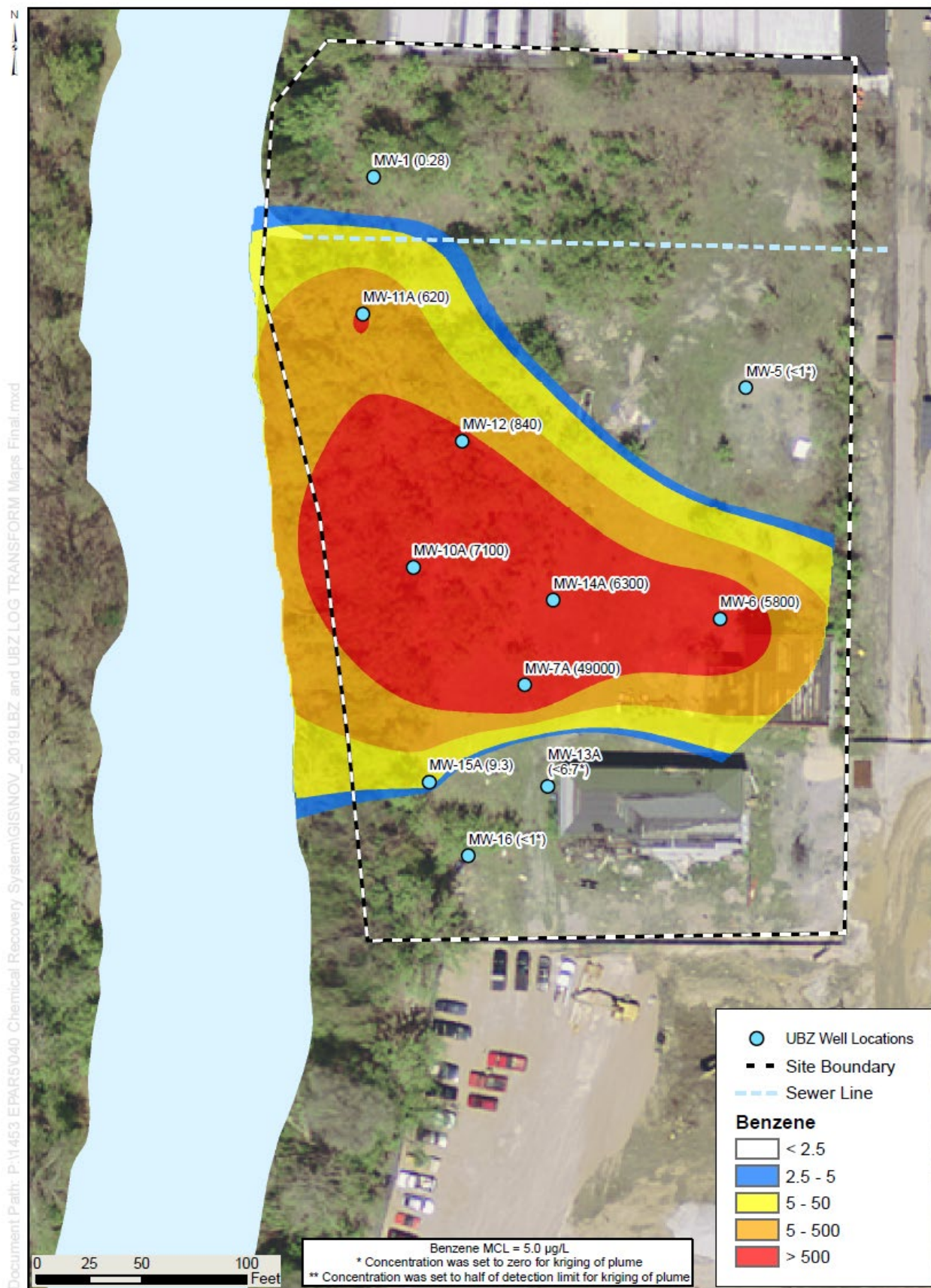


Figure B5 2011 Benzene Concentrations (µg/L), Upper Bedrock Zone

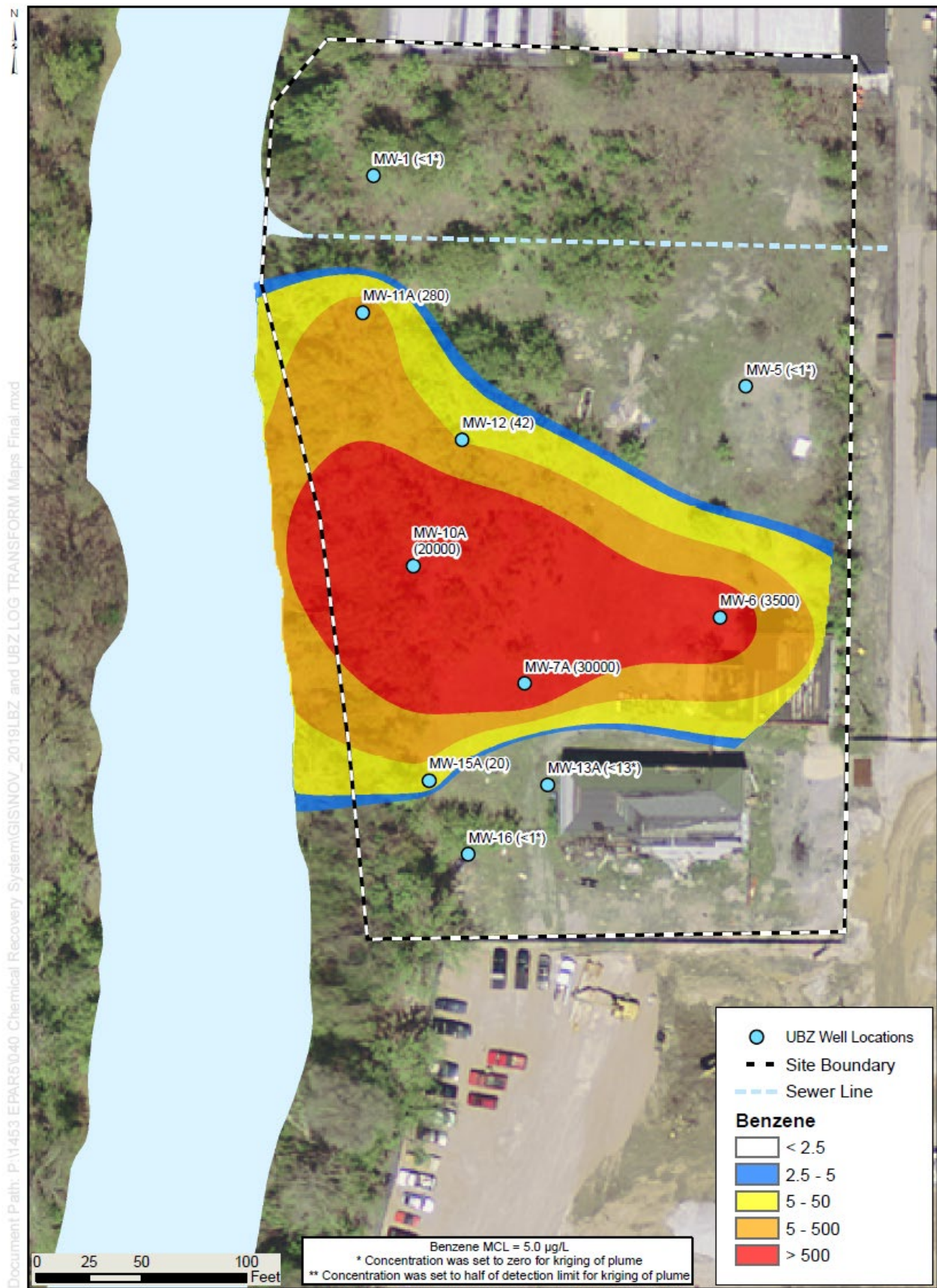


Figure B6 2019 Benzene Concentrations (µg/L), Upper Bedrock Zone



Figure B7 2011 Benzene Concentrations (µg/L), Lower Bedrock Zone

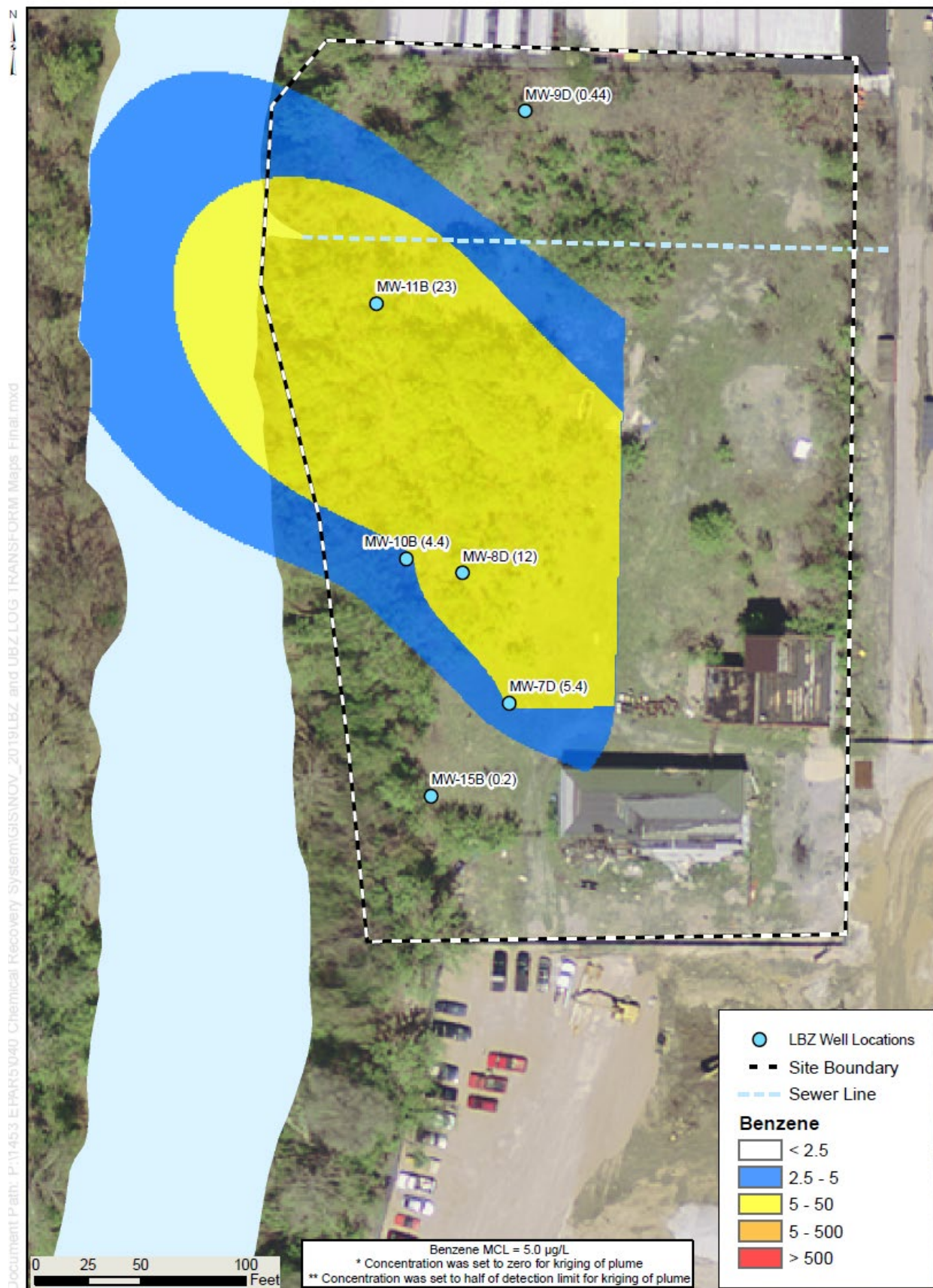


Figure B8 2019 Benzene Concentrations (µg/L), Lower Bedrock Zone

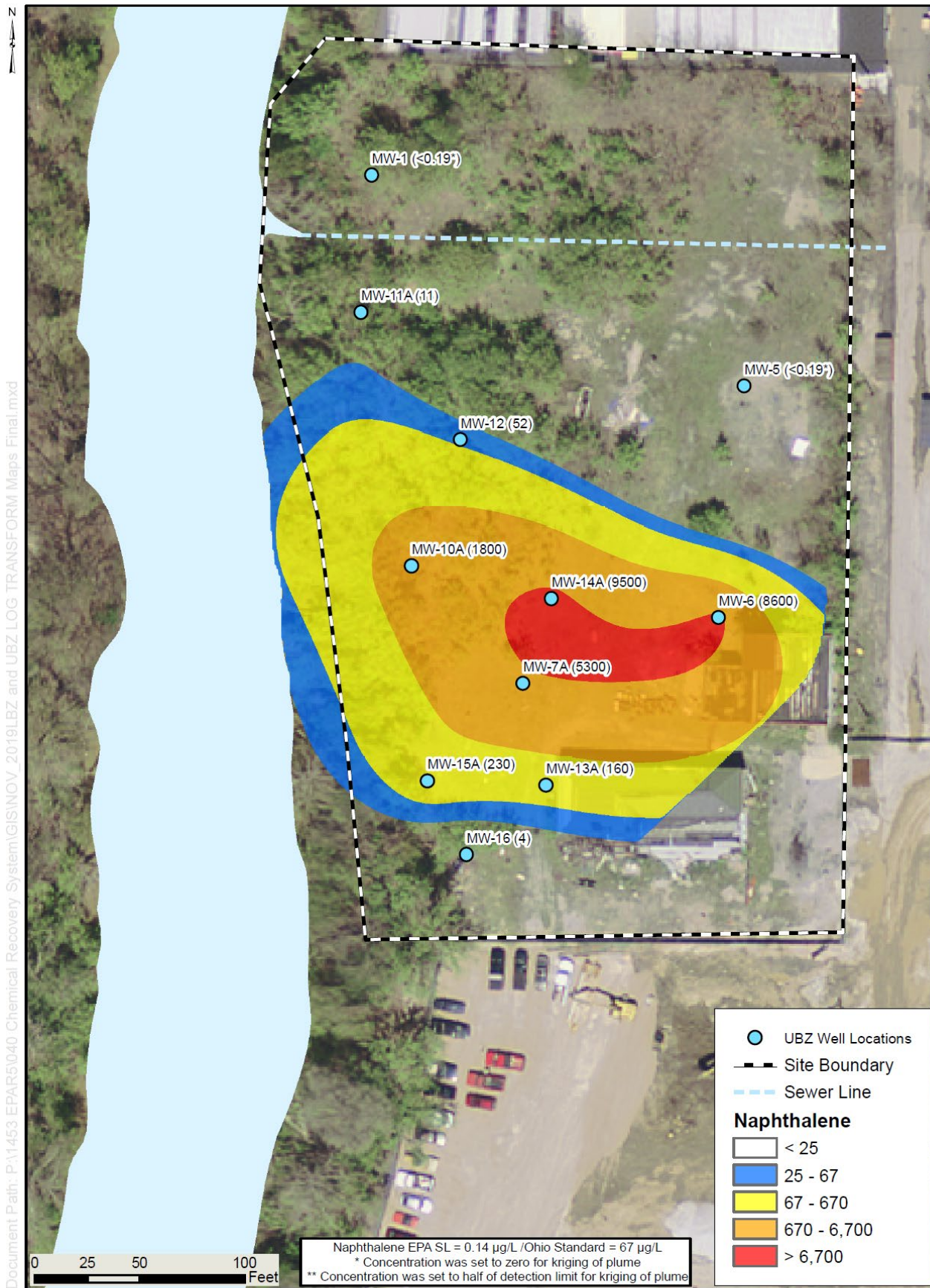


Figure B53 2011 Naphthalene Concentrations (µg/L), Upper Bedrock Zone

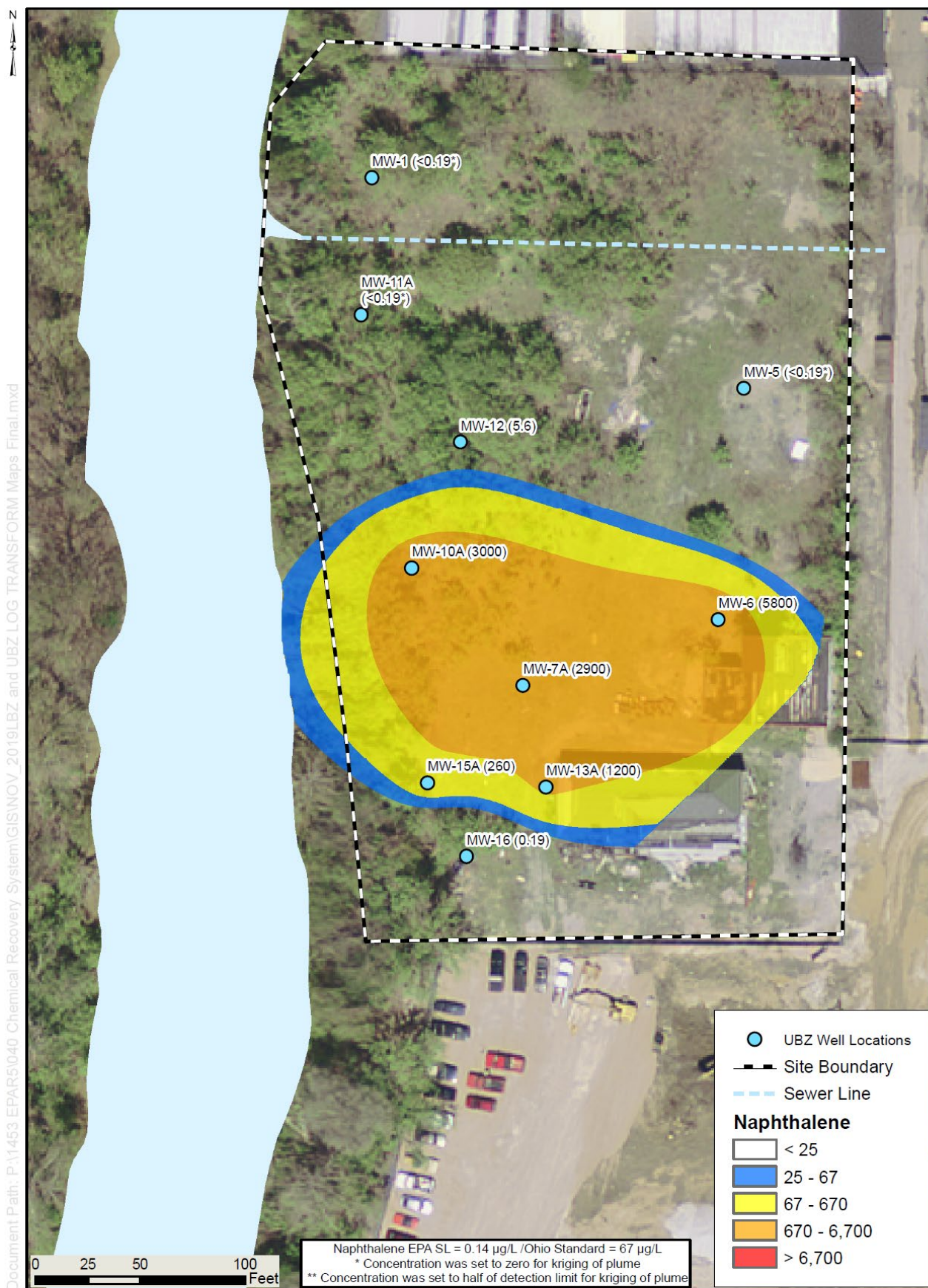


Figure B54 2019 Naphthalene Concentrations (µg/L), Upper Bedrock Zone

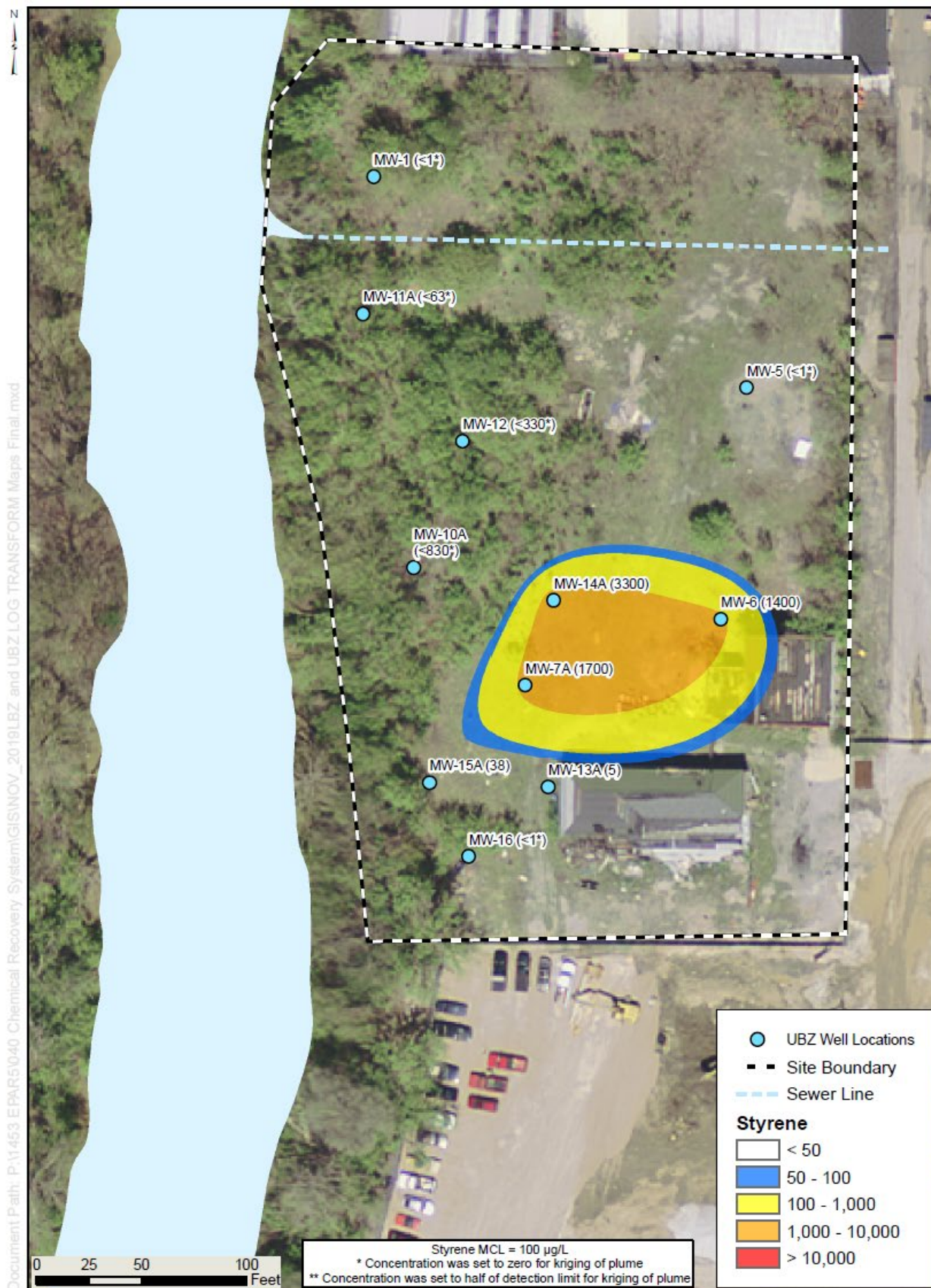


Figure B21 2011 Styrene Concentrations (µg/L), Upper Bedrock Zone

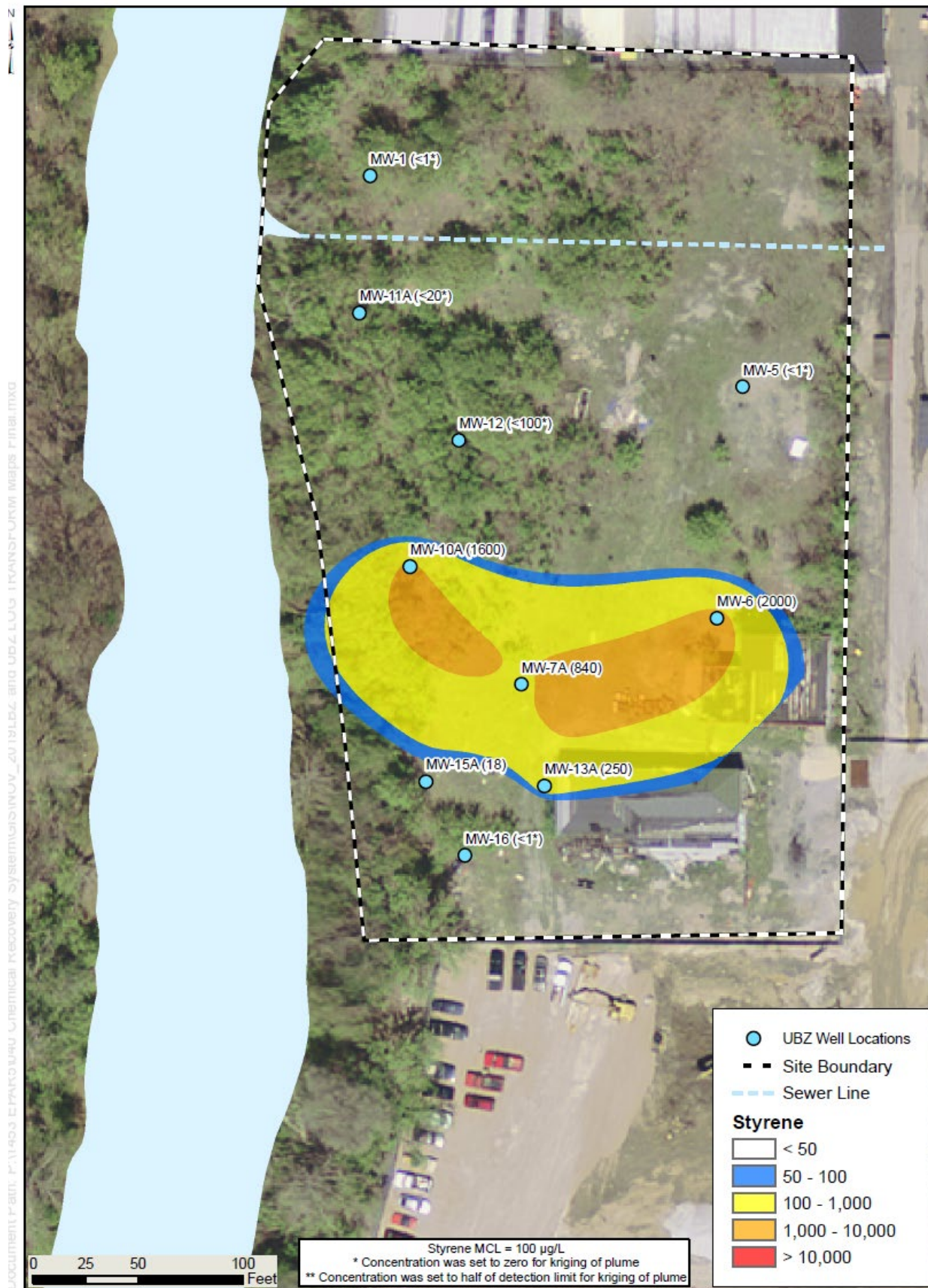


Figure B22 2019 Styrene Concentrations (µg/L), Upper Bedrock Zone

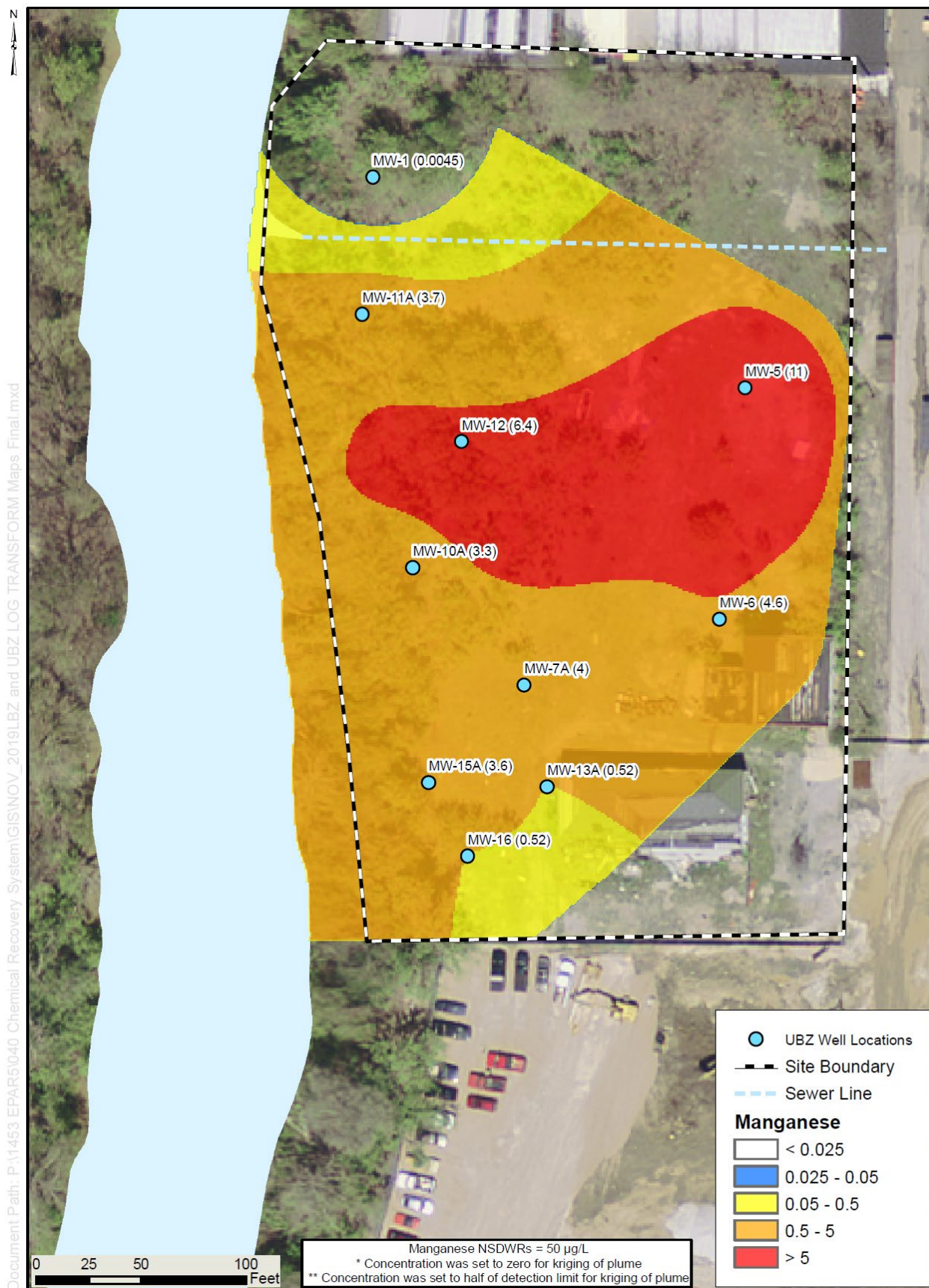


Figure B61 2019 Manganese Concentrations (mg/L), Upper Bedrock Zone

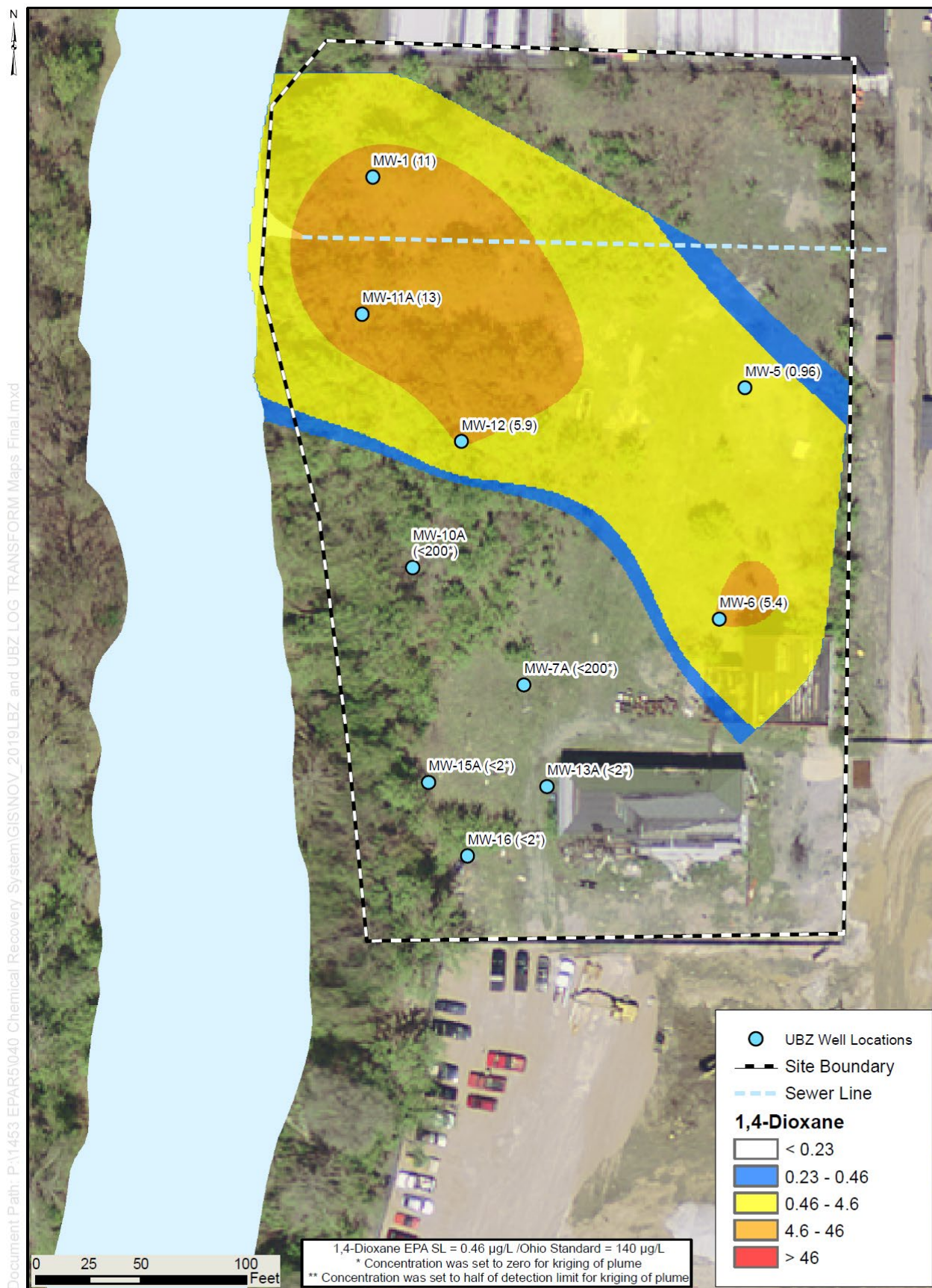


Figure B65 2019 1,4-Dioxane Concentrations (µg/L), Upper Bedrock Zone

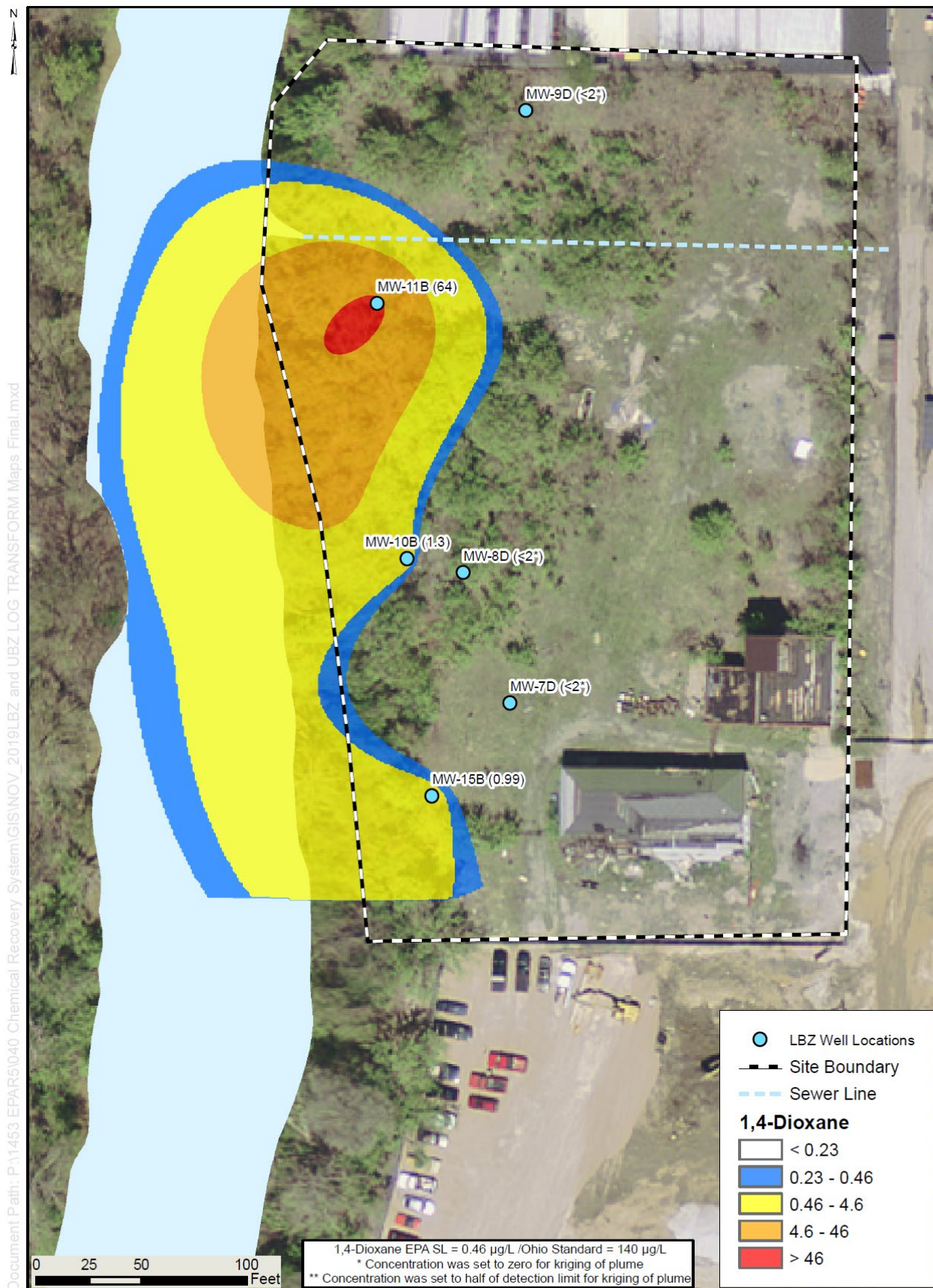
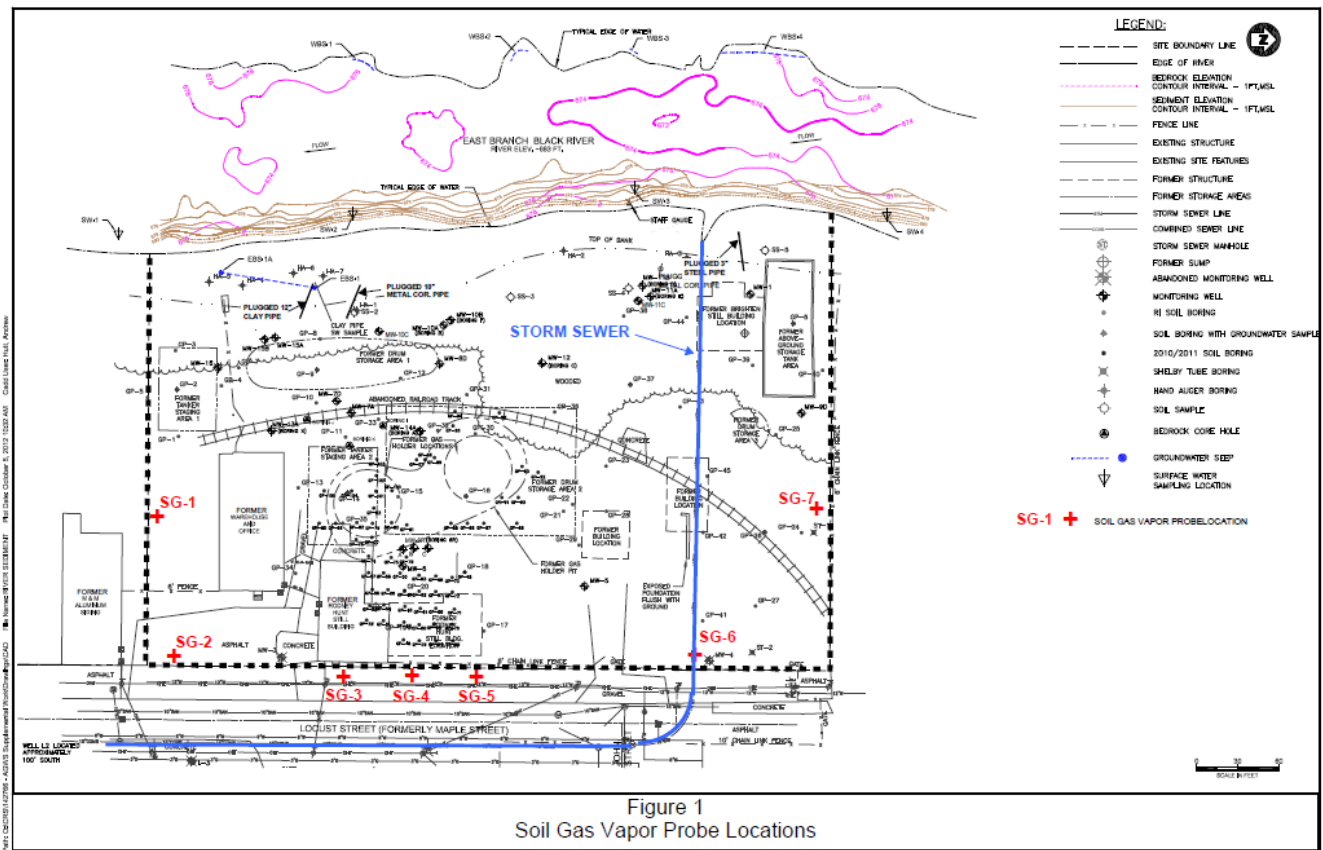


Figure B66 2019 1,4-Dioxane Concentrations (µg/L), Lower Bedrock Zone

APPENDIX E – Site Soil Gas Data Review



Detected Compound	QAPP Action Level (mg/m ³)	Reported Detected Concentration (mg/m ³)							
		SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	Duplicate (SG-3)
Chloroform	1.8	<RL	<RL	0.047	<RL	<RL	<RL	<RL	0.039 J
Naphthalene	1.2	<RL	<RL	0.031 J	<RL	<RL	<RL	<RL	<RL
Tetrachloroethene	18	4.5	0.01 J	23	1.6	0.21 J	5.7	2.4	34
Trichloroethene	0.88	0.21	0.0025 J	11	29	0.99	110	0.028	13
Vinyl Chloride	9.3	<RL	<RL	0.74	<RL	<RL	<RL	<RL	0.53
1,1,1-Trichloroethane	NAL	0.043	<RL	6.7	7.0	12	0.1	0.1	4.0
1,1,2-Trichloro-1,2,2-trifluoroethane	NAL	<RL	<RL	0.096	0.68 J	0.32	3.6	0.038	0.074
1,1-Dichloroethane	NAL	0.021 J	<RL	1.6	0.12 J	0.57	<RL	0.0027 J	1.3
1,1-Dichloroethene	NAL	<RL	<RL	0.24	0.23 J	0.06 J	<RL	0.005 J	0.23
1,2,4-Trimethylbenzene	NAL	<RL	<RL	0.014 J	<RL	<RL	<RL	0.026	<RL
1,3,5-Trimethylbenzene	NAL	<RL	<RL	<RL	<RL	<RL	<RL	0.023	<RL
1,3-Butadiene	NAL	<RL	<RL	<RL	<RL	0.048 J	<RL	<RL	<RL
Benzene	NAL	<RL	0.016	0.042	<RL	0.18	<RL	<RL	0.058
Butane	NAL	0.037 J	0.34	0.35	0.11 J	0.49	<RL	0.0045 J	0.12
Carbon Disulfide	NAL	0.027 J	0.08	0.4	0.21 J	0.11 J	0.38 J	0.0097 J	0.4
cis-1,2-Dichloroethene	NAL	0.024 J	<RL	4.2	2.0	0.12 J	2.5	<RL	3.5
Cyclohexane	NAL	<RL	0.093	0.22	<RL	<RL	<RL	0.0087 J	0.11
Decane	NAL	<RL	0.0041 J	0.039 J	<RL	<RL	<RL	0.011 J	<RL
Ethylbenzene	NAL	<RL	0.0051 J	0.11	<RL	<RL	<RL	0.026	<RL
Heptane	NAL	<RL	0.043	0.05 J	<RL	<RL	<RL	0.015 J	<RL
Hexane	NAL	<RL	<RL	2.5	0.18 J	0.11 J	<RL	0.004 J	0.64
Isopropylbenzene	NAL	<RL	0.0032 J	0.046 J	<RL	<RL	<RL	<RL	<RL
Methylene Chloride	NAL	0.059 JB	0.018 JB	1.4 B	1.1 JB	0.34 JB	2.7 JB	0.039 JB	0.082 JB
Nonane	NAL	<RL	0.0097 J	0.036 J	<RL	<RL	<RL	0.0085 J	<RL
Octane	NAL	<RL	0.019	0.040 J	<RL	<RL	<RL	0.0053 J	<RL
Pentane	NAL	<RL	0.24	0.18 J	<RL	0.24 J	<RL	<RL	0.067 J
Propylbenzene	NAL	<RL	<RL	0.011 J	<RL	<RL	<RL	<RL	<RL
Toluene	NAL	<RL	0.038	1.8	0.44 J	0.21 J	<RL	2.4	0.028 J
trans-1,2-Dichloroethene	NAL	<RL	<RL	3.1	0.76	<RL	<RL	<RL	2.9
Trichlorofluoromethane	NAL	<RL	<RL	0.023 J	<RL	<RL	<RL	0.031	<RL
Undecane	NAL	<RL	<RL	0.017 J	<RL	<RL	<RL	<RL	<RL
Xylenes, total	NAL	<RL	0.02	0.19	<RL	<RL	0.34 J	0.43	<RL

Notes:

- Table includes those compounds that were detected in at least one soil gas sample.
- QAPP Action Levels represent published Removal Management Levels (RMLs) for sub-slab soil gas from Ohio EPA's August 2016 guidance document.
- Highlighted data exceed the Action Level.
- RL = Reporting Limit.
- NAL = No Action Level established.
- J = Estimated value detected between the RL and the Method Detection Limit (MDL).
- B = Compound detected in associated laboratory blank.

APPENDIX F – 5 YR Site Inspection Report, Checklist, and Base Map



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MEMORANDUM

TO: File
Chemical Recovery Site
SSID#0521
Elyria, Ohio

FROM: Judy Canova, RPM *J. Canova*
Remedial Response Section #6
Remedial Response Branch #1

DATE: January 28, 2020

RE: Five Year Review (5YR)
Inspection and Interview Summary
November 19, 2019

As part of the 5YR process, I visited the Chemical Recovery Site on November 19, 2019. The purpose of the visit was to evaluate the current site conditions with respect to protectiveness of human health, to obtain input from the community regarding the site, and to determine steps that are needed to insure future protectiveness of the site. The inspection also included an evaluation of the potential areas of groundwater discharge to surface water near the site and review of cores from bedrock wells recently installed across the Black River.

The following personnel were present during the site inspection:

Robert Ford	EPA-ORD
Susan Netzly-Watkins	Ohio EPA
Mark Caetta	Ohio EPA
Pat Steerman	RP Group Project Coordinator
Emily Gloeckler	RP Technical Representative Goodyear
Jennifer Tharp	RP Squire Patton Boggs Legal Counsel Representative
Larry Mencin	RP Technical Representative Sherwin Williams
Joe Warburten	Brown and Caldwell, Contractor to RP
Max Moroney	Brown and Caldwell

The three primary components of the 5YR site inspection included 1) observing the progress of remedial action at the site, 2) checking the fence for stability, continuity, and signage, and 3) observing the current condition of existing monitoring wells at the site.

Approximately 80% of the site is shown in the following picture:



A substantial number of monitoring wells with intact outer casing are shown. The picture also shows that the buildings at the site have been demolished. The white building with a blue door near the center of the photograph is a small storage unit placed on the site to hold cores obtained from the bedrock investigation at the site. Former building foundations are overgrown with vegetation and are still present at the site along with various concrete slabs. Limited above-ground structures remain on the northern side of the site.

Picture of one of the concrete slabs remaining at the site that served as the foundation for the Brighton Still Building:



Picture of residual above-ground structures at the site other than the storage unit:



The portion of the Remedial Action (RA) that has been completed at the site so far includes building demolition and filling of two sumps with concrete. Soil proposed for removal in the RA Workplan remains at the site including contaminated surface soil. As the previous pictures show, debris is

currently present at the site that could present a trip hazard in the area where contaminated surface soil is present. The plugging and filling of the sewer line has not occurred. Other options are being considered for the sewer line. Quarterly groundwater monitoring began at the site in the summer of 2019 in order to assess current water quality trends.

With respect to the site fencing, it is present on three sides of the property but is not present between the property boundary and the Black River, as shown below:



The photographs below show that where the fence was present, it did not have warning signs or no trespassing signs to discourage site entry:







The beige colored buildings and associated stop signs and security gates are associated with the adjacent BASF facility.



The picture above shows fencing on the southern side of the Chemical Recovery property. The fencing abruptly ends at the bank of the Black River. The small sign on the fencing shown above is a warning sign pertaining to the BASF property, and it appears the fence was installed by BASF.

With respect to the condition of the monitoring wells at the site, MW-3 and MW-4 were not able to be located, and they have been missing for an extended period of time. According to Pat Steerman, these wells were installed in the 1980s and were not included in the Remedial Investigation. It is not known if these wells were properly abandoned or destroyed. The remaining wells had outer casing and inner casing, but it was observed that the following wells did not have a plug or seal set into the inner casing: MW-1, MW-6RA, MW-6RB, MW-6RC, MW-8D, MW-11A, MW-11B, MW-11C, and MW-14. The following wells had suitable outer casing and a seal on the inner casing: MW-5, MW-6, MW-7A, MW-7D, MW-10A, MW-10B, MW-10C, MW-15A, MW-15B, and MW-16.

Pictures of a well with no plug and a well with a plug on the inner casing are shown below:



Sampling was ongoing during the site visit as shown below:



The Black River was inspected by Robert Ford and Pat Steerman. The photograph below shows Robert Ford navigating down the river bank to the Black River:



Robert Ford did not identify any areas where he noted potential groundwater discharges to surface water adjacent to the site. He used an infrared camera to see if thermal contrasts could be detected between groundwater and surface water, but no contrasts were identified using the camera. The temperature difference between groundwater and surface water at the time of inspection was unknown.

To gain perspective on the geology and other controls of surface water flow, a park adjacent to the river near the site was visited. Fractured bedrock predominates the geology adjacent to the river, and water levels are controlled by two dams. A picture of one of the two dams is shown below.



A bedrock investigation across the Black River was completed prior to the 5YR site inspection. The locations of the new bedrock monitoring wells were reviewed along with cores from the well installation. The cores showed shale and sandstone is present across the Black River from the site. Some of the material appears to be fractured and friable while other sections of the cores showed competent bedrock. Iron staining in the competent portion of the cores suggests water has been moving through fractures in the competent rock where the staining was noted. The photographs below show the cores and the well completions:





I left the site to meet with representatives from the City of Elyria regarding their plans for redevelopment of the area specifically pertaining to the sewer line on the Chemical Recovery property

and to discuss any questions they had regarding the site or plans for the site. At 11:00 am, I met with the following individuals:

Holly Brinda, Mayor
John Schneider, City Engineer
Kathryn McKillips, Assistant City Engineer
Terry Korzan, Wastewater Superintendent

The city indicated their plans for the area are not imminent but rather their plans are focused on upgrading the East Avenue area. There is a lift station used by BASF for discharge of industrial and sewage water which connects to a 10" line on Locust Street which flows to a lift station. The Locust Street lift station pumps through a force-main under the Black River to a manhole near the intersection of Harrison and Glenwood Street. The storm sewer on the Chemical Recovery property is connected to 2 or 3 catch basins along Locust Street. The city has discussed ways to divert storm water around the Chemical Recovery property, but they do not view this as financially viable for the city. The storm sewer line cannot be lined because of its position and condition.

The city was interested in the bedrock monitoring wells across the Black River from the Chemical Recovery site as two of the wells were installed in locations that required access and approval from the city. I indicated we were still in the process of gathering water quality information from the wells. They requested an opportunity to review and comment on the 5YR. I agreed to provide a copy to city officials. City representatives were also interested in the cost of remediation at the Chemical Recovery site. I indicated the remediation was being funded by the responsible parties for the site.

After the meeting, I returned to the site around 12:00 noon. All personnel had departed from the site except for Brown and Caldwell representatives who were continuing with groundwater sample collection. I spoke on the phone with two of the property owners including Doug and Don Dubena who are sons of the former site operators. Their concern regarding the site pertained to when remediation would be completed and what use would be acceptable for the remediated property. They indicated an interest in converting the property into an area of storage units for rent. I suggested that this could be a viable future use for the property and indicated I did not have a date I could provide them with respect to when the property would be ready for redevelopment.

After the telephone calls, I met with Robert Ford to discuss future plans for evaluation of groundwater/surface water interactions at the site. The site visit, phone calls, and meetings were completed at approximately 1:30 pm. The 5YR Site Inspection Checklist pertaining to this site visit is attached.

cc: Susan Netzly-Watkins, Ohio EPA
Pat Steerman

Site Inspection Checklist

I. SITE INFORMATION	
Site name: Chemical Recovery	Date of inspection: 11/19/2019
Location and Region: Elyria, Ohio Region 5	EPA ID: OHD057001810
Agency, office, or company leading the five-year review: EPA Region 5, S&EMD	Weather/temperature: Cloudy/38° F
Remedy Includes: (Check all that apply) <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="checkbox"/> Landfill cover/containment <input checked="" type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls <input type="checkbox"/> Groundwater pump and treatment <input type="checkbox"/> Surface water collection and treatment <input type="checkbox"/> Other: Removal of contaminated soil and backfill with clean soil </div> <div style="width: 50%;"> <input checked="" type="checkbox"/> Monitored natural attenuation <input type="checkbox"/> Groundwater containment <input type="checkbox"/> Vertical barrier walls </div> </div>	
Attachments: <input checked="" type="checkbox"/> Inspection team roster attached (See Inspection Report) <input checked="" type="checkbox"/> Site map attached	

II. INTERVIEWS (Check all that apply)			
1. O&M site manager _____			
Name _____	Title _____	Date _____	
Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____			
Problems, suggestions; <input type="checkbox"/> Report attached _____ _____			
2. O&M staff _____			
Name _____	Title _____	Date _____	
Interviewed: <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____			
Problems, suggestions; <input type="checkbox"/> Report attached _____			
3. Local regulatory authorities and response agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.			
Agency <u>City of Elyria</u>			
Contact <u>Holly Brinda</u>	Title <u>Mayor</u>	Date <u>11/19/2019</u>	Phone no. <u>(440) 326-1402</u>
Name _____ Title _____ Date _____ Phone no. _____			
Problems; suggestions; <input checked="" type="checkbox"/> Report attached (Trip Report). Discussed concerns regarding repairing and upgrading sewer line at site and plans for redevelopment in the area. City is concerned about who will be required to fund replacement of the sewer line. Sewer cannot be relined due to structural issues. City would like to receive communications regarding the future of the sewer line and plans for site reuse when they become available.			
Agency: Ohio Environmental Protection Agency			
Contact: <u>Susan Netzly-Watkins</u>	Title <u>Environmental Specialist</u>	Date <u>11/19/2019</u>	Phone no. <u>(330) 963-1201</u>
Name _____ Title _____ Date _____ Phone no. _____			
Problems; suggestions; <input checked="" type="checkbox"/> Report attached. A strong odor from the adjacent BASF facility was noted. Ohio EPA participated in the site inspection and proposed to send their concerns in writing inquired regarding the odor and were notified soil was being removed and graded for construction of a parking lot.			
4. Other interviews (optional) <input checked="" type="checkbox"/> Report attached (Trip Report)			
I spoke with Doug and Don Dubena who are the sons of the former site owners. Their primary interest is regarding the potential future use of the property and when site remediation will be complete. Proposed future use for the property includes a parking lot or long-term storage units.			

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)			
1. O&M Documents			
<input type="checkbox"/> O&M manual	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> As-built drawings	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Maintenance logs	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks _____			
2. Site-Specific Health and Safety Plan			
	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
<input type="checkbox"/> Contingency plan/emergency response plan	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks <u>Current plan addresses health and safety issues pertaining to sampling. It was reviewed and discussed during the site visit.</u>			
3. O&M and OSHA Training Records			
	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks _____			
4. Permits and Service Agreements			
<input type="checkbox"/> Air discharge permit	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Effluent discharge	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Waste disposal, POTW	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Other permits _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks _____			
5. Gas Generation Records			
	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks _____			
6. Settlement Monument Records			
	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks _____			
7. Groundwater Monitoring Records			
	<input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date	<input type="checkbox"/> N/A
Remarks: Submitted in quarterly reports			
8. Leachate Extraction Records			
	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks _____			
9. Discharge Compliance Records			
<input type="checkbox"/> Air	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
<input type="checkbox"/> Water (effluent)	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks _____			
10. Daily Access/Security Logs			
	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input checked="" type="checkbox"/> N/A
Remarks _____			

IV. O&M COSTS

1. O&M Organization

- ☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☒ Other No O&M at present

2. O&M Cost Records – No O&M at this time

- ☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate _____ ☐ Breakdown attached

Total annual cost by year for review period if available

From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date _____	Date _____	Total cost _____	
From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date _____	Date _____	Total cost _____	
From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date _____	Date _____	Total cost _____	
From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date _____	Date _____	Total cost _____	
From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date _____	Date _____	Total cost _____	

3. Unanticipated or Unusually High O&M Costs During Review Period

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
A. Fencing			
1.	Fencing damaged	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> Gates secured <input type="checkbox"/> N/A
Remarks <u>Replacement of the fence is part of the remedial action yet to be implemented. There is no fencing between the site and the Black River. Overall, the fence is in disrepair although it is continuous on three sides. The gate and other sections of fence are leaning and there are places where the fence could be crossed with little difficulty. Pictures are included in the attached November 19 5YR Site Inspection Trip Report.</u>			
B. Other Access Restrictions			
1.	Signs and other security measures	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A
Remarks <u>There are no warning signs or informational signs attached to the fence. There are no signs regarding trespassing except for the signs posted by the adjacent BASF facility to deter trespassing on the BASF property. Pictures of the fence showing no signage are included in the attached November 19 5YR Site Inspection Trip Report.</u>			
C. Institutional Controls (ICs)			
1.	Implementation and enforcement		
Site conditions imply ICs not properly implemented		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
Site conditions imply ICs not being fully enforced		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
Type of monitoring (e.g., self-reporting, drive by) <u>self-reporting</u>			
Frequency: infrequent			
Responsible party/agency: Chemical Recovery RP Group			
Group Contact	<u>Pat Steerman</u>	<u>RP Site Coordinator</u>	<u>11/19/2019 (770) 992-2836</u>
Name		Title	Date
			Phone no.
Reporting is up-to-date		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
Reports are verified by the lead agency		<input type="checkbox"/> Yes	<input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Specific requirements in deed or decision documents have been met		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
Violations have been reported		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No <input type="checkbox"/> N/A
Other problems or suggestions:		<input checked="" type="checkbox"/> Report attached	
See 11/19/19 Trip Report regarding condition of fencing. Although deed restrictions were implemented in accordance with the ROD, annual monitoring and reporting of ICs has not occurred at the site.			
2.	Adequacy	<input type="checkbox"/> ICs are adequate	<input checked="" type="checkbox"/> ICs are inadequate <input type="checkbox"/> N/A
Remarks <u>The IC workplan was submitted in July of 2010 and was approved by EPA in September, 2010. Although annual reporting was included in the approved IC workplan, annual reporting has not occurred since 2010. Reporting regarding ICs is inadequate and has not complied with the IC workplan. Therefore, ICs are not adequate as monitoring and reporting have not occurred.</u>			
D. General			
1.	Vandalism/trespassing	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No vandalism evident
Remarks _____			
2.	Land use changes on site	<input checked="" type="checkbox"/> N/A	
Remarks _____			
3.	Land use changes off site	<input checked="" type="checkbox"/> N/A	
Remarks _____			

VI. GENERAL SITE CONDITIONS			
A. Roads <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
1.	Roads damaged	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Roads adequate <input checked="" type="checkbox"/> N/A
Remarks _____			
B. Other Site Conditions			
Remarks The structures on the site have been demolished and one storage building is present that is being used to house cores from geological investigations. The grass was cut prior to the November 19, 2019 site visit, but debris is present in many areas as discussed in the attached site inspection report. Some of the debris is present below the ground cover and is not visible resulting in trip hazards across the site.			
VII. LANDFILL COVERS <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
A. Landfill Surface			
1.	Settlement (Low spots)	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Settlement not evident
Areal extent _____		Depth _____	
Remarks _____			
2.	Cracks	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Cracking not evident
Lengths _____		Widths _____ Depths _____	
Remarks _____			
3.	Erosion	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Erosion not evident
Areal extent _____		Depth _____	
Remarks _____			
4.	Holes	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Holes not evident
Areal extent _____		Depth _____	
Remarks _____			
5.	Vegetative Cover	<input type="checkbox"/> Grass	<input type="checkbox"/> Cover properly established <input type="checkbox"/> No signs of stress
<input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram)			
Remarks _____			
6.	Alternative Cover (armored rock, concrete, etc.)	<input checked="" type="checkbox"/> N/A	
Remarks _____			
7.	Bulges	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Bulges not evident
Areal extent _____		Height _____	
Remarks _____			

8. Wet Areas/Water Damage <input type="checkbox"/> Wet areas/water damage not evident		
<input type="checkbox"/> Wet areas	<input type="checkbox"/> Location shown on site map	Areal extent _____
<input type="checkbox"/> Ponding	<input type="checkbox"/> Location shown on site map	Areal extent _____
<input type="checkbox"/> Seeps	<input type="checkbox"/> Location shown on site map	Areal extent _____
<input type="checkbox"/> Soft subgrade	<input type="checkbox"/> Location shown on site map	Areal extent _____
Remarks _____		
9. Slope Instability <input type="checkbox"/> Slides <input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of slope instability		
Areal extent _____		
Remarks _____		
B. Benches <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1. Flows Bypass Bench <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay		
Remarks _____		
2. Bench Breached <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay		
Remarks _____		
3. Bench Overtopped <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay		
Remarks _____		
C. Letdown Channels <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)		
1. Settlement <input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of settlement		
Areal extent _____	Depth _____	
Remarks _____		
2. Material Degradation <input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of degradation		
Material type _____	Areal extent _____	
Remarks _____		
3. Erosion <input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of erosion		
Areal extent _____	Depth _____	
Remarks _____		
4. Undercutting <input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of undercutting		
Areal extent _____	Depth _____	
Remarks _____		
5. Obstructions Type _____ <input type="checkbox"/> No obstructions		
<input type="checkbox"/> Location shown on site map	Areal extent _____	
Size _____		
Remarks _____		

6. Excessive Vegetative Growth <input type="checkbox"/> No evidence of excessive growth <input type="checkbox"/> Vegetation in channels does not obstruct flow <input type="checkbox"/> Location shown on site map Remarks _____	Type _____ Areal extent _____
D. Cover Penetrations <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A	
1. Gas Vents <input type="checkbox"/> Active <input type="checkbox"/> Passive <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____	
2. Gas Monitoring Probes <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____	
3. Monitoring Wells (within surface area of landfill) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____	
4. Leachate Extraction Wells <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____	
5. Settlement Monuments <input type="checkbox"/> Located <input type="checkbox"/> Routinely surveyed <input type="checkbox"/> N/A Remarks _____	
E. Gas Collection and Treatment <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A	
1. Gas Treatment Facilities <input type="checkbox"/> Flaring <input type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____	
2. Gas Collection Wells, Manifolds and Piping <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____	
3. Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____	

F. Cover Drainage Layer		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1. Outlet Pipes Inspected	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks _____			

2. Outlet Rock Inspected	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks _____			

G. Detention/Sedimentation Ponds		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1. Siltation	Areal extent _____	Depth _____	<input type="checkbox"/> N/A
<input type="checkbox"/> Siltation not evident			
Remarks _____			

2. Erosion	Areal extent _____	Depth _____	
<input type="checkbox"/> Erosion not evident			
Remarks _____			

3. Outlet Works	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks _____			

4. Dam	<input type="checkbox"/> Functioning	<input type="checkbox"/> N/A	
Remarks _____			

H. Retaining Walls		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1. Deformations	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Deformation not evident	
Horizontal displacement _____	Vertical displacement _____		
Rotational displacement _____			
Remarks _____			

2. Degradation	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Degradation not evident	
Remarks _____			

I. Perimeter Ditches/Off-Site Discharge		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1. Siltation	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Siltation not evident	
Areal extent _____	Depth _____		
Remarks _____			

2. Vegetative Growth	<input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> N/A	
<input type="checkbox"/> Vegetation does not impede flow			
Areal extent _____	Type _____		
Remarks _____			

3. Erosion	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Erosion not evident	
Areal extent _____	Depth _____		
Remarks _____			

4.	Discharge Structure	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A	Remarks _____ _____
VIII. VERTICAL BARRIER WALLS <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A				
1.	Settlement	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Settlement not evident	Areal extent _____ Depth _____ Remarks _____ _____
2.	Performance Monitoring Type of monitoring _____ <input type="checkbox"/> Performance not monitored Frequency _____ <input type="checkbox"/> Evidence of breaching Head differential _____ Remarks _____ _____			
IX. GROUNDWATER/SURFACE WATER REMEDIES <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A				
A. Groundwater Extraction Wells, Pumps, and Pipelines		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A	
1.	Pumps, Wellhead Plumbing, and Electrical <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells properly operating <input type="checkbox"/> Needs Maintenance <input checked="" type="checkbox"/> N/A Remarks _____ _____			
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____			
3.	Spare Parts and Equipment <input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks _____ _____			
B. Surface Water Collection Structures, Pumps, and Pipelines		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A	
1.	Collection Structures, Pumps, and Electrical <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____			
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____			
3.	Spare Parts and Equipment <input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks _____ _____			

C. Treatment System <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
1. Treatment Train (Check components that apply)			
<input type="checkbox"/> Metals removal	<input type="checkbox"/> Oil/water separation	<input type="checkbox"/> Bioremediation	
<input type="checkbox"/> Air stripping	<input type="checkbox"/> Carbon adsorbers		
<input type="checkbox"/> Filters _____			
<input type="checkbox"/> Additive (e.g., chelation agent, flocculent) _____			
<input type="checkbox"/> Others _____			
<input type="checkbox"/> Good condition		<input type="checkbox"/> Needs Maintenance	
<input type="checkbox"/> Sampling ports properly marked and functional			
<input type="checkbox"/> Sampling/maintenance log displayed and up to date			
<input type="checkbox"/> Equipment properly identified			
<input type="checkbox"/> Quantity of groundwater treated annually _____			
<input type="checkbox"/> Quantity of surface water treated annually _____			
Remarks _____			
2. Electrical Enclosures and Panels (properly rated and functional)			
<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance			
Remarks _____			
3. Tanks, Vaults, Storage Vessels			
<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance			
Remarks _____			
4. Discharge Structure and Appurtenances			
<input checked="" type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance			
Remarks _____			
5. Treatment Building(s)			
<input checked="" type="checkbox"/> N/A		<input type="checkbox"/> Good condition (esp. roof and doorways)	<input type="checkbox"/> Needs repair
<input type="checkbox"/> Chemicals and equipment properly stored			
Remarks _____			
6. Monitoring Wells (pump and treatment remedy)			
<input type="checkbox"/> Properly secured/locked	<input type="checkbox"/> Functioning	<input type="checkbox"/> Routinely sampled	<input type="checkbox"/> Good condition
<input type="checkbox"/> All required wells located	<input type="checkbox"/> Needs Maintenance	<input checked="" type="checkbox"/> N/A	
Remarks _____			
D. Monitoring Data			
1. Monitoring Data			
<input checked="" type="checkbox"/> Is routinely submitted on time		<input checked="" type="checkbox"/> Is of acceptable quality	
2. Monitoring data suggests:			
<input type="checkbox"/> Groundwater plume is effectively contained		<input type="checkbox"/> Contaminant concentrations are declining	

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☐ Good condition
☐ All required wells located ☒ Needs Maintenance ☐ N/A

Remarks Monitoring wells MW-3 and MW-4 have been missing for an extended period of time. It is not known if these wells were properly abandoned. Nine wells did not have a plug or seal set into the inner casing (see attached Site Inspection Report). Two quarters of sampling occurred in the summer and fall of 2019 and two are anticipated during the first two quarters of 2020. Three bedrock wells across the Black River from the site were installed in the fall of 2019. The presence of non-aqueous phase liquid (NAPL) in selected monitoring wells may have affected sampling results in those wells.

X. OTHER REMEDIES

In accordance with the approved Phase I Remedial Action Work Plan, demolition of buildings on-site has occurred. One sump has been filled with concrete. The soil removal proposed in the ROD has not occurred. Contaminated surface soil remains at the site. The sewer line at the site has not been addressed. Other pipes and outfall structures at the site have been removed.

XI. OVERALL OBSERVATIONS	
A. Implementation of the Remedy	
<p>Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).</p> <p>The remedy selected in the Record of Decision (ROD) included building demolition, outfall removal, repair of the sewer line, soil removal, and backfill with clean soil to reduce the potential for direct human exposure to contaminants. After the soil removal, long-term monitoring of groundwater quality was proposed to determine if soil removal sufficiently reduced contaminant leaching to groundwater or if additional response actions would be needed to address groundwater contamination. The buildings on-site have been demolished although concrete pads associated with the buildings remain. The soil has not been removed, but long-term groundwater monitoring began in the summer of 2018. A manufactured gas plant (MGP) was identified at the site during remedial actions. Additional monitoring wells have been installed and additional samples have been collected to determine the contribution of the MGP. To date, the objectives of the remedy including eliminating the potential for direct contact of contaminants and reducing the concentrations of contaminants leaching to groundwater have not been achieved. Although some monitoring wells indicate decreasing concentrations of selected contaminants at the site, the presence of non-aqueous phase liquid is a source of continuing release of contaminants to groundwater. Without additional action at the site, the goal of achieving drinking water standards in a reasonable time frame will not be met. It is not known if remedial action objectives have been met regarding contaminant migration to surface water and protection of ecological receptors.</p>	
B. Adequacy of O&M	
<p>Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.</p> <p>As the remedy has not been fully implemented, the only ongoing O&M at the site includes maintenance of the monitoring wells. Until the remedy is performed, it will not be considered protective.</p>	
C. Early Indicators of Potential Remedy Problems	
<p>Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.</p> <p>The recently-identified MGP at the site is a potential remedy problem as the current ROD (2007) does not include measures to address this area.</p>	
D. Opportunities for Optimization	
<p>Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.</p> <p>Based on available information, excavation and off-site disposal of subsurface contaminants and backfill with clean soil beyond the scope identified in the ROD could optimize the proposed remedy.</p>	

